



BOOK 3

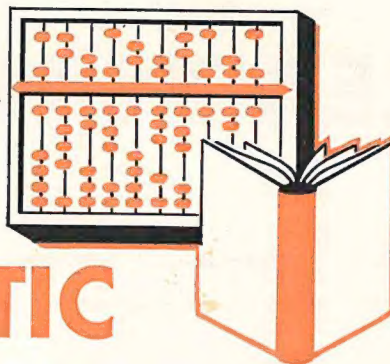
# LEARNING TO USE **ARITHMETIC**





**LEARNING TO USE**

# ARITHMETIC



## BEGINNERS BOOK

### AUTHORS

**F. LYNWOOD WREN**

*George Peabody College for Teachers, Nashville*

**J. WAYNE WRIGHTSTONE**

*Bureau of Educational Research, New York City*

**JOSEPH H. RANDALL**

*Formerly Public Schools, Newton, Massachusetts*

**AGNES G. GUNDERSON**

*Formerly University of Wyoming, Laramie*

**JOSEPH J. URBANCEK**

*Chicago Teachers College*

**GEORGE E. HOLLISTER**

*University of Wyoming, Laramie*

BOOK 1

BOOK 2

\* BOOK 3 \*

BOOK 4

BOOK 5

BOOK 6

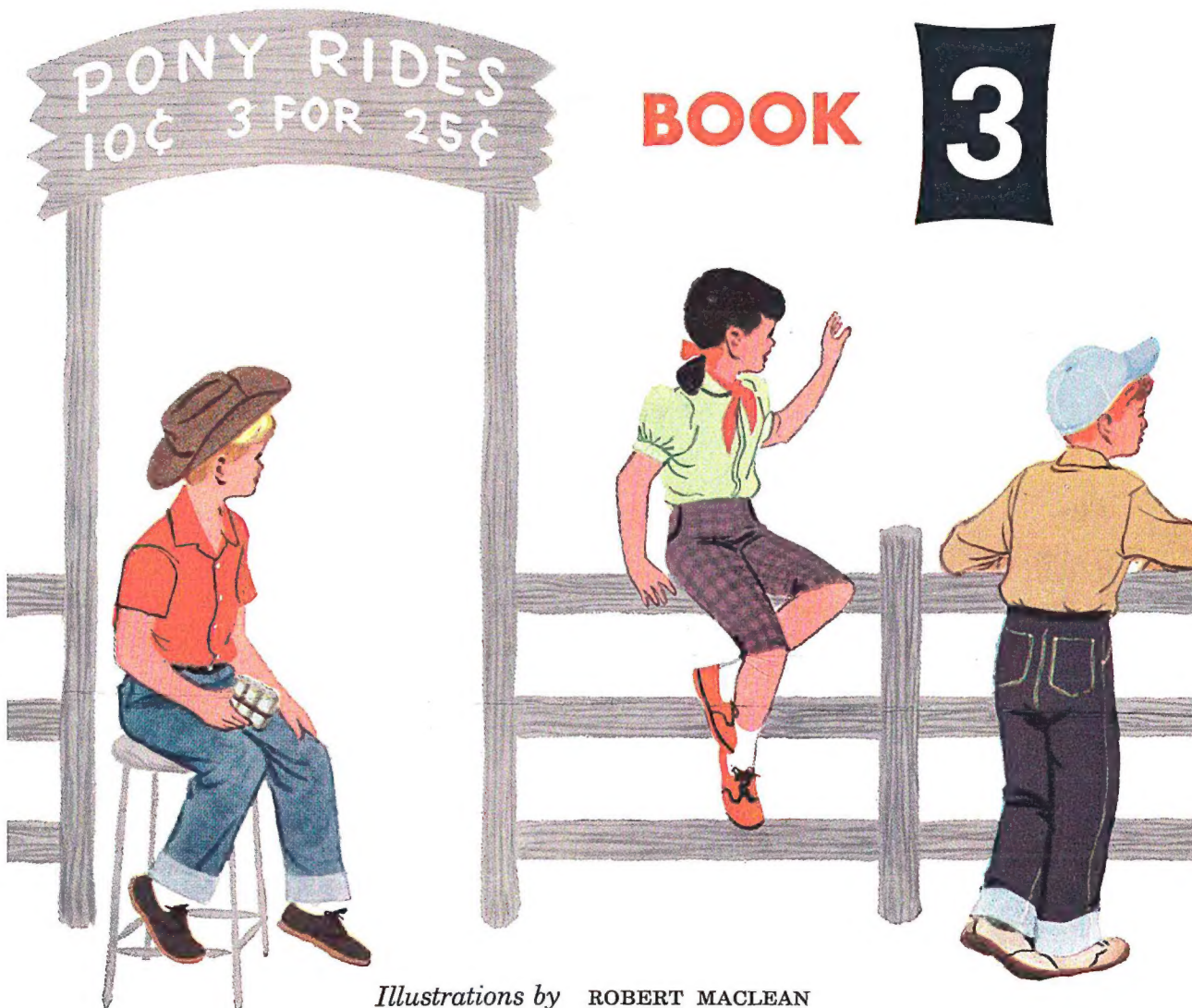
BOOK 7

BOOK 8

# LEARNING TO USE

**BOOK**

**3**



*Illustrations by* ROBERT MACLEAN  
NINO CARBÉ and ALICE GOLDEN



# ARITHMETIC

BY JOSEPH H. RANDALL

*in collaboration with*

F. LYNWOOD WREN

J. WAYNE WRIGHTSTONE

JOSEPH J. URBANCEK

AGNES G. GUNDERSON



D. C. HEATH AND COMPANY BOSTON

COPYRIGHT, 1958, BY D. C. HEATH AND COMPANY PRINTED IN THE U.S.A. (5D7)



# CONTENTS



## CHAPTER 1

Using Arithmetic

1

## CHAPTER 2

Working with Numbers  
Eleven to Twenty

38

## CHAPTER 3

Addition and Subtraction

70

## CHAPTER 4

Adding and Subtracting  
Two-Place Numbers

104





## CHAPTER 5

Adding and Subtracting  
by Endings 150

## CHAPTER 6

Regrouping in Addition  
and Subtraction 182

## CHAPTER 7

Multiplying and Dividing 230

## CHAPTER 8

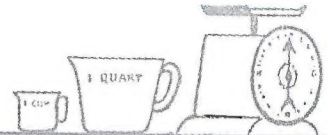
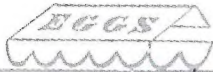
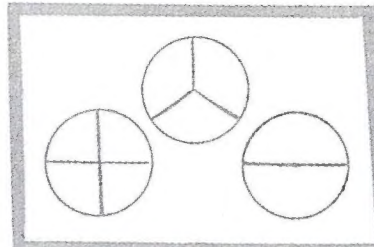
Going On with Multiplication  
and Division 272

## CHAPTER 9

Multiplying and Dividing  
Three-Place Numbers 296

# CHAPTER

# 1





# Using Arithmetic

SEPTEMBER						
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					



## Our Arithmetic Corner

"I brought a game for our arithmetic corner," said Dick.

"I brought something to use for playing store," said Ruth.

Bill said, "I brought this. It tells us when to go out to play."

1. Look at the picture to find what each child brought.
2. Look at the picture to find other things that help you in arithmetic.
3. Do you know anything else that helps you learn to use arithmetic?
4. Do you use arithmetic when you:
  - play hide-and-seek?
  - go shopping at the grocery store?
  - have a birthday party?
  - have a parade?
  - buy lunch at the cafeteria?





## Counting by Fives, Tens, and Threes

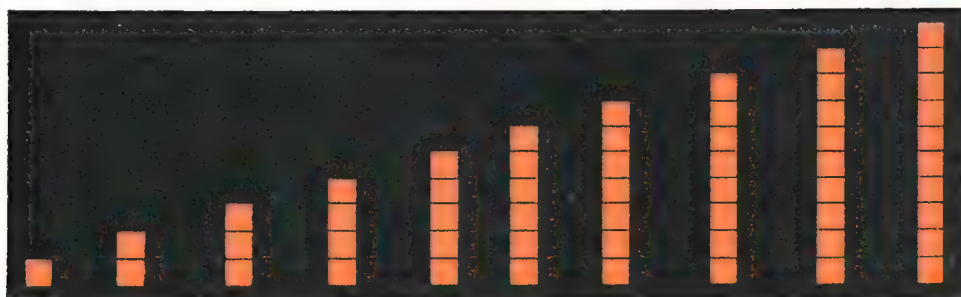
1. Copy the numbers shown in the number chart.
2. Write the numbers you say when you count to 30 by 5; to 30 by 10.
3. Draw a ring around the numbers you say when you count to 30 by 3. Write those numbers on your paper.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30

Number Chart

## How Many?

Bill made stacks of blocks to show the numbers from 1 to 10. How many blocks are in each stack?



1	2	3	4	5	6	7	8	9	10
One	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten

1. How many blocks has the highest stack?
2. How many blocks has the lowest stack?
3. Some stacks have more blocks than others. Which has more blocks, the stack of 3 or the stack of 4?
4. Which stack has the most blocks?
5. Some stacks have fewer blocks than others. Which has fewer blocks, the stack of 5 or the stack of 6?
6. Which stack has the fewest blocks?

## Odd and Even Numbers

The children are marching in *pairs*. Each pair has one boy and one girl. A pair is how many?

1. How many children marched? Count them by twos. Point to each pair and start by saying, "2, 4, 6."
2. Numbers like 2, 4, 6 are *even numbers*. Read the other even numbers to 20. Try to count by 2's to 20 without looking in your book.
3. Read the numbers under the boys. Numbers like 1, 3, 5 are *odd numbers*. Read the other odd numbers to 19. Can you say them without any help?
4. Play a game called *Odd or Even*. The child who is "It" calls a number between 1 and 20. Another child tells whether the number called is odd or even. If he is wrong, he is "It."

## Who Is First?

1. Look at the picture again. John is *first*. He is *Number 1*. Find John.
2. Tell what number is under the *fourth* child; the *second*; the *fifth*; the *eighth*; the *seventh*.
3. Is a boy or a girl third? tenth? sixth? ninth?

1	2	3	4	5
First	Second	Third	Fourth	Fifth
6	7	8	9	10
Sixth	Seventh	Eighth	Ninth	Tenth



## Number Facts

Dick and Ruth went to the park. They saw many birds and animals.

The pictures will help you say the missing numbers in each sentence. You may need to cover part of the pictures. Never write in your book.



1 and 1 are   ?  

1 and   ?   are 2.

2 take away 1 is   ?  

Take 1 from 2. 1 from 2 is   ?  



1 and 2 are   ?  

2 and 1 are   ?  

1 and   ?   are 3.

  ?   and 1 are 3.

3 take away 1 is   ?  

Take 1 from 3. 1 from 3 is   ?  

3 take away 2 is   ?  

Take 2 from 3. 2 from 3 is   ?  



1 and 3 are   ?  

3 and 1 are   ?  

1 and   ?   are 4.

  ?   and 1 are 4.

4 take away 1 is   ?  

Take 1 from 4. 1 from 4 is   ?  

4 take away 3 is   ?  

Take 3 from 4. 3 from 4 is   ?  



2 and 3 are   ?  

3 and 2 are   ?  

2 and   ?   are 5.

  ?   and 3 are 5.

5 take away 2 is   ?  

Take 2 from 5. 2 from 5 is   ?  

5 take away 3 is   ?  

Take 3 from 5. 3 from 5 is   ?  





## Adding and Subtracting

Dick had 3 airplanes.  
Ruth gave him 2 more.

Dick put the airplanes together in one group. How many did he have?

Dick thought, "3 airplanes and 2 airplanes are 5 airplanes. 3 and 2 are 5." When Dick put 3 and 2 together to make 5 he was *adding*.

To add is to put together and find how many in all.

$$\begin{array}{r} 3 \\ +2 \\ \hline 5 \end{array}$$

At the left is one way to write an addition example. Read it, "3 and 2 are 5." The sign + means to put together, or *add*. Another way to write 3 and 2 are 5 is:  $3 + 2 = 5$ . We say *and* for the sign +; *are* for the sign =.

Dick took 2 of his 5 airplanes and gave them to his little brother. How many airplanes did he have left? 5 take away 2 is how many?

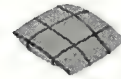
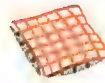
Dick thought, "5 airplanes take away 2 airplanes are 3 airplanes. 5 take away 2 is 3." When Dick took 2 from 5, leaving 3, he was *subtracting*.

To subtract is to take away and find how many are left.

$$\begin{array}{r} 5 \\ -2 \\ \hline 3 \end{array}$$

At the left is one way to write a subtraction example. Read it, "5 take away 2 is 3," or "2 from 5 is 3." The sign - means to take away, or *subtract*. Another way to write 5 take away 2 is 3 is:  $5 - 2 = 3$ . We say *take away* for the sign -; *are* or *is* for the sign =.

## Zero in Addition and Subtraction



Joan and Ted played a game with beanbags. Joan made 1 on her first toss and 3 on her second toss. Her score was  $1 + 3$ , or  $\underline{\quad?}$ .

Ted made 8 on his first toss and 0, or *none*, on his second toss. His score was  $8 + 0$ , or  $\underline{\quad?}$ .

When you add 0 and a number, the number itself is the answer.

Copy these examples and write the answers.

1.     1     0     3     0     5     0     7     0     9     0  
       $\underline{+0}$     $\underline{+2}$     $\underline{+0}$     $\underline{+4}$     $\underline{+0}$     $\underline{+6}$     $\underline{+0}$     $\underline{+8}$     $\underline{+0}$     $\underline{+0}$

Joan and Ted played another game. They put six pennies on the table. Ted shut his eyes while Joan hid pennies. Ted opened his eyes and said, "There are none left on the table. You hid all 6 pennies.  $6 - 6 = 0$ ."

When you subtract a number from itself, 0 is left.

Then Joan shut her eyes. Ted hid none of the pennies. Joan opened her eyes and said, "All of the pennies are left on the table. You hid none.  $6 - 0 = 6$ ."

When you subtract 0 from a number, the number itself is left.

Copy these examples and write the answers.

2.     1     2     3     4     5     6     7     8     9     0  
       $\underline{-1}$     $\underline{-0}$     $\underline{-3}$     $\underline{-0}$     $\underline{-5}$     $\underline{-0}$     $\underline{-7}$     $\underline{-0}$     $\underline{-9}$     $\underline{-0}$





## Pennies, Nickels, Dimes

Pennies, nickels, and dimes are money. They are called coins.



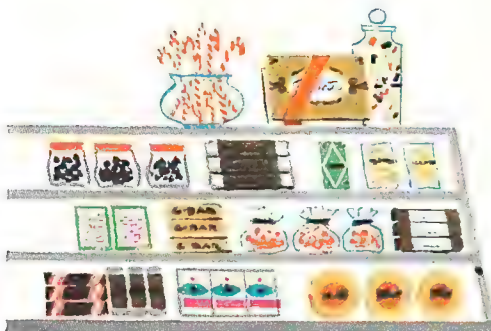
1. A penny is worth   ?   cent.
2. A nickel is worth   ?   cents.
3. A dime is worth   ?   cents;   ?   nickels.
4. Which would you rather have, a dime, a nickel, or a penny? Why?



5. Sue had the pennies shown in the picture. How many did she have? Are her pennies worth as much as a nickel? If Sue said, "I will trade all but 1 of my pennies for a nickel," would you trade?
6. Joe has 10 pennies. What one coin could he get for these pennies? What two coins could he get?



7. John has 4 nickels. Count by 5's to find how much money John has. Could John get 20 pennies for the 4 nickels? Could he get 2 dimes for the pennies?
8. How many cents are a nickel and 2 pennies worth?
9. How many cents are a nickel and 5 pennies worth?



Read and tell the answers to the examples below.  
For 1¢ say, "1 cent." For 5¢ say, "5 cents."

- |  |  |  |
|--|--|--|
| 10. $1¢ + 5¢ = \underline{\quad ? \quad}$              | $5¢ + 5¢ = \underline{\quad ? \quad}$              | $3¢ + 1¢ = \underline{\quad ? \quad}$              |
| 11. $1¢ + 4¢ = \underline{\quad ? \quad}$              | $2¢ + 6¢ = \underline{\quad ? \quad}$              | $5¢ + 3¢ = \underline{\quad ? \quad}$              |
| 12. $\begin{array}{r} 5¢ \\ +3¢ \\ \hline \end{array}$ | $\begin{array}{r} 4¢ \\ +2¢ \\ \hline \end{array}$ | $\begin{array}{r} 3¢ \\ +4¢ \\ \hline \end{array}$ |
| $\begin{array}{r} 5¢ \\ +4¢ \\ \hline \end{array}$     | $\begin{array}{r} 3¢ \\ +6¢ \\ \hline \end{array}$ | $\begin{array}{r} 4¢ \\ +5¢ \\ \hline \end{array}$ |

The sign ¢ means cent or cents.

Now copy the examples and write the answers. Be sure to put in the ¢ sign.

### Making Change

- Bill bought some candy for 2 cents. He gave the man a nickel. The man gave Bill the candy and 3 cents. He said, "2 cents for the candy and 3 cents in change make 5 cents." How much change did Bill get? How much change would he get if the candy cost 1¢? 4¢? 3¢?
- Joan bought a ball for 6¢. She gave the storekeeper a dime. The man gave Joan the ball and 4 cents. He said, "6 cents for the ball and 4 cents in change make 10 cents." How much change would Joan get? How much would she get if the ball cost 4¢? 8¢? 7¢? 3¢?



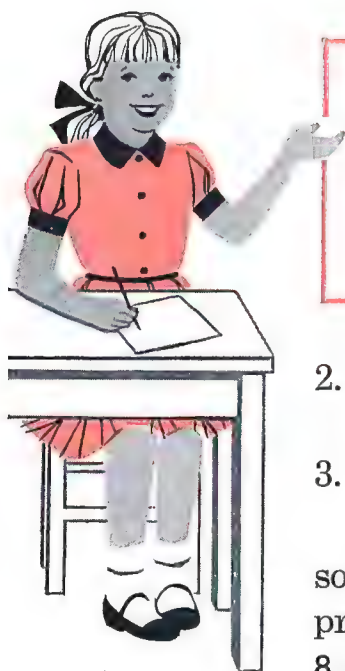
## Finding Out for Yourself

Miss Gay said, "Do you like to find out things for yourself? If you do, you can find out number facts for yourself. Let's use 10 bits of cardboard. We will call them counters. Use 5 counters to start with. Put them in a row like this":  $\square\square\square\square\square$ . "What do they show?"

Ruth said, "They show that 4 and 1 are 5, 1 and 4 are 5, 4 from 5 is 1, and 1 from 5 is 4."

"Good," said Miss Gay. "Now put them in a row like this":  $\square\square\square\square\square$ . "What facts do they show now?"

1. Make a picture chart like the one below and finish writing the facts about 5.



### Facts about 5

$\square\square\square\square\square$

4 and 1 are 5

1 and  $\underline{\quad?}$  are 5

4 from 5 is  $\underline{\quad?}$

1 from 5 is  $\underline{\quad?}$

$\square\square\square\square\square$

$\underline{\quad?}$  and 2 are 5

2 and  $\underline{\quad?}$  are 5

3 from  $\underline{\quad?}$  is 2

$\underline{\quad?}$  from 5 is  $\underline{\quad?}$

2. Use as many counters as you need and find out all the number facts you can about 6; about 10.
3. Make a picture chart for the facts about 8; about 9.

You can use such charts in *solving problems*. You solve a problem by finding the right answer to the problem question. Use your chart for the facts about 8 to help you solve problem 4. Find the picture and fact that best fit the problem.

4. Ann had 7 books. Her aunt gave her 1 book more. How many books did Ann have then?

## Showing the Facts of Numbers to 10

*Facts of 2*



*Facts of 3*



*Facts of 4*



*Facts of 5*



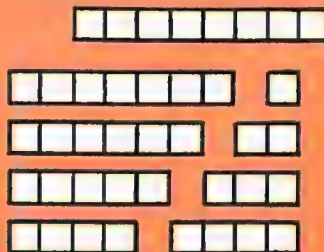
*Facts of 6*



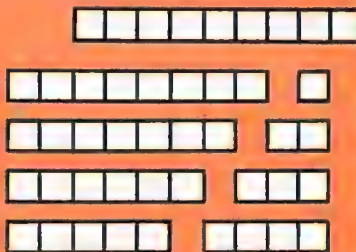
*Facts of 7*



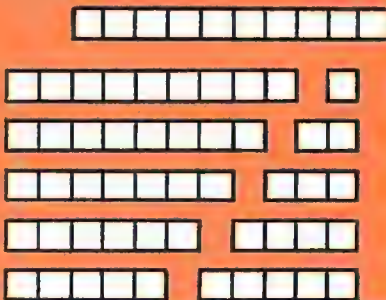
*Facts of 8*



*Facts of 9*



*Facts of 10*





## Using Numbers to 10

Miss Gay said, "*Call a Number* is a game about *number facts*. 4 and 2 are 6 is a number fact."

Kay and Joan knew how to play the game.

"Call a number," said Joan.

"Seven," said Kay.



Joan counted out 7 buttons. She laid them down in a row like this: ○○○○○○ ○

She said, "The buttons show that 6 and 1 are 7, 1 and 6 are 7, 1 from 7 is 6, 6 from 7 is 1."

"Right!" said Kay.

Then Joan put down the 7 buttons in a row like this: ○○○○○ ○○

She said, "Now the buttons show that 5 and 2 are 7, 5 from 7 is 2, 2 from 7 is 5."

"My turn!" said Kay. "You left out one fact."

1. Do you know what fact Joan left out?
2. Tell all the number facts about 7.
3. Play *Call a Number* with a friend. Use buttons or other counters. Call a number up to 10. Let your friend show and tell all the number facts about that number. If he leaves out a fact or gets a fact wrong, you get a turn.

## Helps in Learning Number Facts

The boys and girls in Miss Gay's room talked about helps in learning number facts.

Bill said, "I learn some facts by counting. When I count forward by 1's, I can see that if you add 1 to any number, you get the next number.

$$\begin{array}{l} 1 + 1 = 2 \\ 2 + 1 = 3 \\ 3 + 1 = 4 \end{array}$$

"When I count backward by 1's, I can see that if you take away 1 from any number, you get the number just before it."

$$\begin{array}{l} 10 - 1 = 9 \\ 9 - 1 = 8 \\ 8 - 1 = 7 \end{array}$$

Look at the red numbers. Can you see how Bill used counting to help him learn number facts?

Try Bill's way and see if it helps you.

1. Begin with 4 and tell 6 addition facts that counting forward by 1's tells you.
2. Begin with 7 and tell 6 subtraction facts that counting backward by 1's tells you.
3. Now try counting forward by 2's to 10. 2, 4,    ?,    ?,    ?. What facts can you learn from that?  $2 + 2 = 4$ ;  $4 + 2 = \underline{\quad}$ ;  $6 + 2 = \underline{\quad}$ ;  $8 + 2 = \underline{\quad}$
4. Count backward by 2's from 10. 10, 8,    ?,    ?,    ?. What facts can you learn from that?  $10 - 2 = 8$ ;  $8 - 2 = \underline{\quad}$ ;  $6 - 2 = \underline{\quad}$ ;  $4 - 2 = \underline{\quad}$
5. Count forward by 3's. Can you find what 3 and 3 are? 6 and 3?

1 2 3 4 5 6 7 8 9 10



1 2 3 4 5 6 7 8 9 10



1 2 3 4 5 6 7 8 9 10



Ted said, “Number families help me to learn number facts. If I know that  $5 + 2 = 7$ , I know that  $2 + 5 = 7$ ,  $7 - 2 = 5$ , and  $7 - 5 = 2$ , because all four facts in a number family use the same numbers. That’s why they are called a number family.”

Try Ted’s way of learning number facts and see if it helps you.

1. If you know that  $8 - 3 = 5$ , then you know that  $8 - 5 = \underline{\quad ? \quad}$ ,  $3 + 5 = \underline{\quad ? \quad}$ , and  $5 + 3 = \underline{\quad ? \quad}$ .
2. Tell the other 3 facts that belong in the same family with  $5 + 4 = 9$ .
3. What other three facts go with each fact below?

$$9 - 3 = 6$$

$$2 + 6 = 8$$

$$9 + 1 = 10$$

$$7 + 2 = 9$$

$$9 - 5 = 4$$

$$4 + 6 = 10$$

Jane said, “I use doubles to help me learn other facts. Doubles are easy. You just add two numbers that are the same, like  $1 + 1 = 2$ . When you subtract, the answer is the same as the number you took away, like  $2 - 1 = 1$ . A double has only two facts in its family, and each fact has two numbers that are the same. Doubles help me in learning other facts, too. If  $4 + 4 = 8$ ,  $4 + 5$  must be 1 more, or 9, and  $4 + 3$  must be 1 less, or 7.”

Try Jane’s way of using doubles to learn other number facts and see if it helps you.

1. What subtraction fact goes with  $2 + 2 = 4$ ? with  $5 + 5 = 10$ ?
2. Since  $2 + 2 = 4$ ,  $2 + 3 = \underline{\quad ? \quad}$ , and  $2 + 1 = \underline{\quad ? \quad}$ .
3. What other number facts does  $3 + 3 = 6$  help you to learn?

## Hopscotch on a Chart

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Joan said, "I play hopscotch on this number chart. I add by hopping ahead."

1. To add 4 and 2, Joan put her finger on 4 and hopped ahead 2 more squares to 6. She stopped at 6. Why? 4 and 2 are   ?  .
2. Use the chart to add 6 and 3. Put your finger on 6. Hop forward 3 more squares. That brings you to 9. 6 and 3 are   ?  .
3. In the same way add 3 and 2; 5 and 3; 4 and 4.
4. Put your finger on the right number and hop forward on the chart to find:

7 and 2

4 and 3

3 and 3

4 and 6

Kay said, "I can play hopscotch on the chart too. I subtract by hopping back."

5. To subtract 3 from 8, Kay put her finger on 8 and hopped back 3 squares to 5. She stopped at 5. Why? 3 from 8 is   ?  .
6. Use the chart to subtract 2 from 7. Put your finger on 7. Hop back 2 squares. You stop at 5. 2 from 7 is   ?  .
7. Use the chart to subtract 4 from 6; 5 from 9.
8. Put your finger on the right number and hop back on the chart to find:

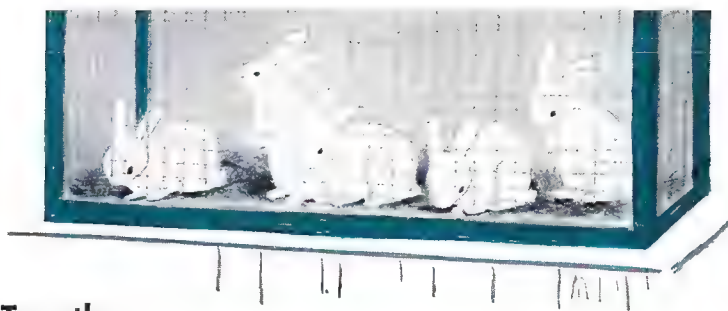
2 from 5

3 from 4

1 from 10

5 from 7





### Putting Two Groups Together

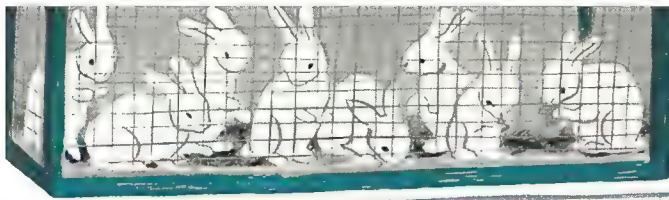
1. Billy had 5 rabbits. Tommy gave him 3 more rabbits. How many rabbits did Billy have then? 5 rabbits and 3 rabbits are how many rabbits?  $5 + 3 = \underline{\quad ? \quad}$
2. Tommy brought a small cabbage and a carrot for the rabbits. He paid 6 cents for the cabbage and 3 cents for the carrot. How much in all did he pay? 6 cents and 3 cents are  $\underline{\quad ? \quad}$  cents.  $6 + 3 = \underline{\quad ? \quad}$

Putting groups together to find out how many in all or how much in all is called addition. We use addition to find how many or how much in all.

Use addition to solve these problems.

3. Dick and Ruth went to a pet shop. They saw 7 birds in one cage and 3 in another. How many birds in all did they see?
4. They saw 2 black puppies playing with 2 brown puppies. How many puppies were playing together?
5. They saw 3 large goldfish and 2 small goldfish in a bowl. How many goldfish in all did they see?
6. Dick bought a large goldfish for 5 cents and a small goldfish for 3 cents. How much did he pay for both?
7. Ruth picked up 2 white kittens and 1 gray kitten to hold in her arms. How many kittens in all is that?





### Taking a Group Apart

1. Billy had a pen with 8 rabbits in it. He thought the pen was too small, so he made another pen. He is going to take away 3 rabbits and put them in the new pen. How many rabbits will be left in the old pen?

Look at the 8 rabbits. Cover 3 of them. Do you see how many will be left in the old pen when he takes away 3? How many?  $8 - 3 = \underline{\quad ? \quad}$

2. One morning Billy came out to feed his 8 rabbits. Some had got out of the pen and run away. Only 4 rabbits were left. How many were gone?

Look at the 8 rabbits. Cover the 4 rabbits that were still there. How many were gone?  $8 - 4 = \underline{\quad ? \quad}$

Taking away one part of a group to find the other part is called subtraction. We use subtraction to find how many are left or how many are gone.

Use subtraction to solve these problems.

3. Jane has 6 paper dolls. She is going to give away 2. How many paper dolls will Jane keep?
4. Dick had 10 pennies. He lost some of the pennies through a hole in his pocket. Only 2 were left. How many pennies did he lose?
5. Sue has 10 cents. She is going to spend 3 cents for a pencil. How many cents will she have left?

## Subtracting to Compare



Joan has 5 dolls. Barbara has 3 dolls. Joan has how many more dolls than Barbara?


Look at Joan's dolls. Cover as many dolls as Barbara has. How many did you cover? How many of Joan's dolls are not covered? Then Joan has how many more dolls than Barbara?  $5 - 3 = \underline{\quad ? \quad}$  Barbara has how many fewer dolls than Joan?  $5 - 3 = \underline{\quad ? \quad}$  Can you subtract to find answers to both questions? Are the answers the same?

We use subtraction to find how many more or how many fewer.

Sue has a mother cat and a kitten. The mother cat weighs 8 pounds. The kitten weighs 2 pounds. How much more does the mother cat weigh than the kitten? How much less does the kitten weigh than the mother cat? Can you subtract to find both answers?  $8 - 2 = \underline{\quad ? \quad}$

We use subtraction to find how much more or how much less.

Solve these problems.

- 
1. Tommy has 8 rabbits in a big pen and 3 in a small pen. How many more rabbits are in the big pen than the small pen?
  2. Billy has a black rabbit that weighs 8 pounds and a white rabbit that weighs 7 pounds. The white rabbit weighs how much less than the black rabbit?

Polly invited 10 girls to a party. She is going to give each girl a balloon. She has 6 balloons and she will buy the rest from a balloon man. How many more does she need to make 10 in all?

Look at the balloons in the picture. How many are there? Cover as many balloons as Polly already has. How many did you cover? Can you subtract to find how many more balloons Polly needs to buy from the balloon man?  $10 - 6 = \underline{\quad ? \quad}$

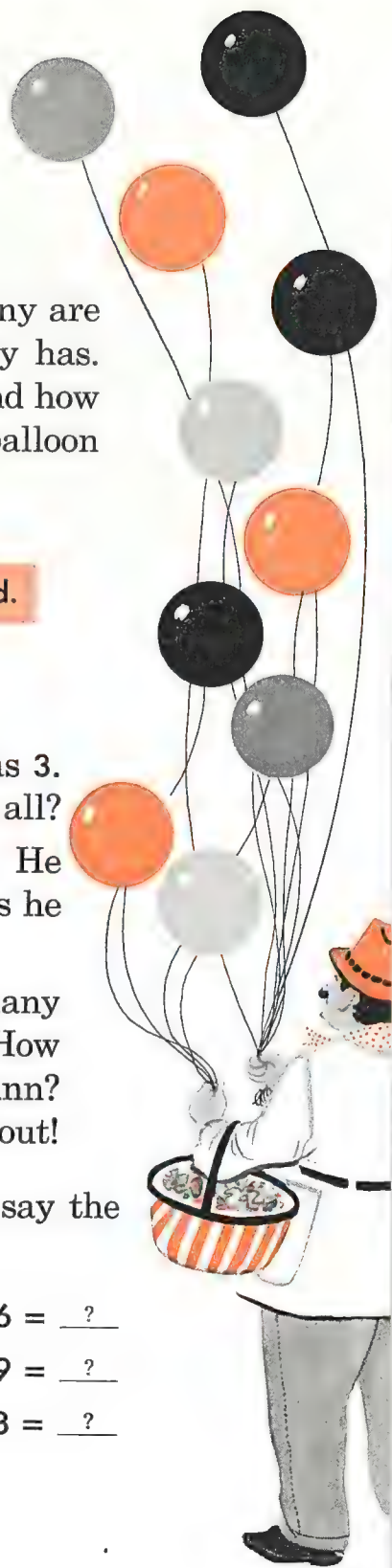
We use subtraction to find how many more we need.

Solve these problems.

1. Ted would like to have 8 blue marbles. He has 3. How many more does Ted need to make 8 in all?
2. Joe wants to buy a 10-cent ice-cream cone. He has only 8 cents. How much more money does he need?
3. Ann has 5 kittens. Sue has 1 kitten. How many more kittens does Ann have than Sue? How many fewer kittens does Sue have than Ann? How many kittens are there in all? Watch out!

The picture of the balloons will help you to say the answers to these examples.

- |   |                                      |                                      |
|---|--------------------------------------|--------------------------------------|
| 4. $4 + \underline{\quad ? \quad} = 10$ | $10 - \underline{\quad ? \quad} = 6$ | $10 - 6 = \underline{\quad ? \quad}$ |
| 5. $7 + \underline{\quad ? \quad} = 10$ | $10 - \underline{\quad ? \quad} = 2$ | $10 - 9 = \underline{\quad ? \quad}$ |
| 6. $2 + \underline{\quad ? \quad} = 10$ | $10 - \underline{\quad ? \quad} = 3$ | $10 - 3 = \underline{\quad ? \quad}$ |







### **Adding and Subtracting Inches**

Sam and Bob have new Arithmetic Folders just alike.

“Are these folders big enough for our arithmetic papers?” asked Bob. “Let’s find out. We each have a foot ruler. You measure your folder with your ruler, and I’ll measure our paper with my ruler.”

Sam’s folder was 10 inches wide. The paper was 8 inches wide. How many inches wider was the folder than the paper?

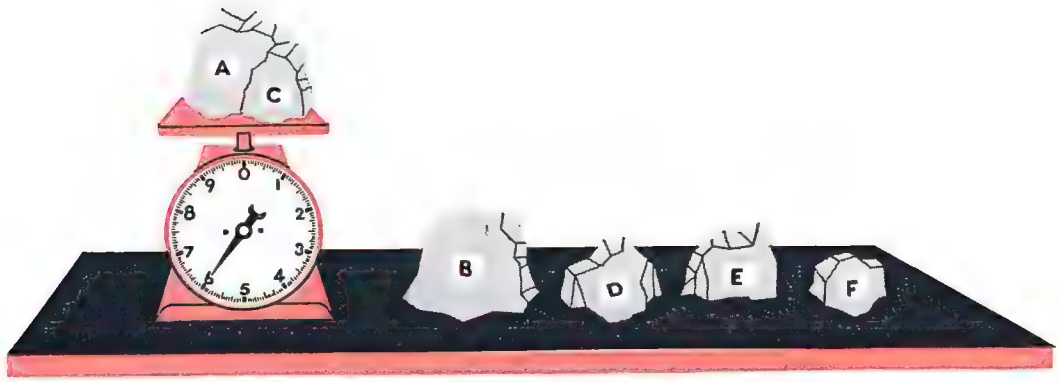
Sam’s folder was a foot long. The paper was 11 inches long. How many inches shorter was the paper than the folder? Hint: How many inches are there in a foot?

Were the folders big enough to hold the paper?

“Let’s measure some other things,” said Sam.



1. They measured two boxes. One was 6 inches high. The other was 4 inches high. They put one box on top of the other. How high were both boxes together?
2. They measured their pencils. Sam's pencil was 7 inches long. Bob's pencil was 5 inches long. Sam's pencil was how many inches longer than Bob's? Bob's pencil was how many inches shorter than Sam's?
3. They measured two blocks of wood. One block was 5 inches long. The other block was 5 inches long, also. How many inches long were both blocks together?



### **Adding and Subtracting Weights**

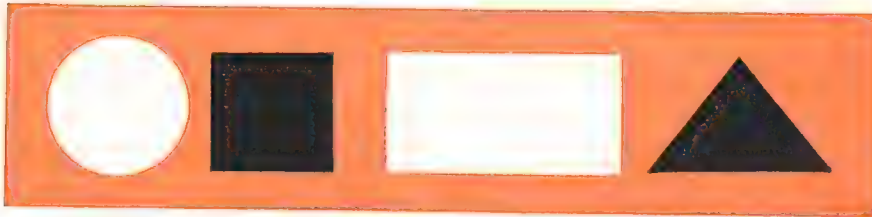
Jack brought his rock collection to school. He put it on the science table. The children weighed the pieces of rock on a scale. They made up problems about the weights of the rocks. See if you can solve the problems.

1. Rock A weighed 4 pounds. Rock B weighed 5 pounds. How much more did rock B weigh than rock A?
2. Dick put rocks A and C together on the scale. He saw that they weighed 6 pounds together. Then he took off rock C and saw that rock A weighed 4 pounds. How much did rock C weigh?
3. Rock D weighed 3 pounds and rock E weighed 3 pounds. What would the scale read if both rocks were put on it together?
4. Rock F weighed 2 pounds and rock A, 4 pounds. How much do rocks A and F weigh together?
5. Read the weights of the rocks in problem 4. Rock F weighed how much less than rock A?
6. Read the weights of the rocks in problem 1. How much do rocks A and B weigh together?



## Shapes

1. Jane drew pictures using the shapes below.  
What is the name of each shape she used?



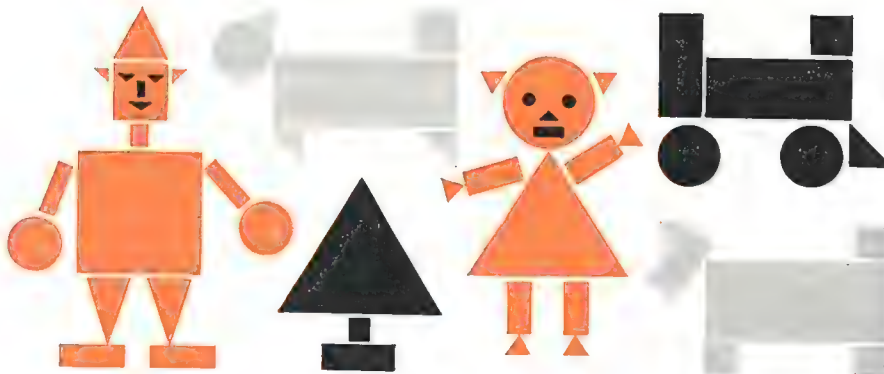
*Circle*

*Square*

*Rectangle*

*Triangle*

2. How many of these shapes can you see in your classroom? On your bicycle? On a toy wagon? Tell the names of shapes you see.
3. How are a square and a rectangle alike? How are they different? How many sides has a triangle? What shape has no corners?
4. Jane's pictures are shown below. Find the squares in the pictures. Find the rectangles. Find the triangles. Find the circles.



5. Draw pictures of your own using circles, squares, rectangles, and triangles. Keep the pictures in your Arithmetic Folder.



### Practice to Remember

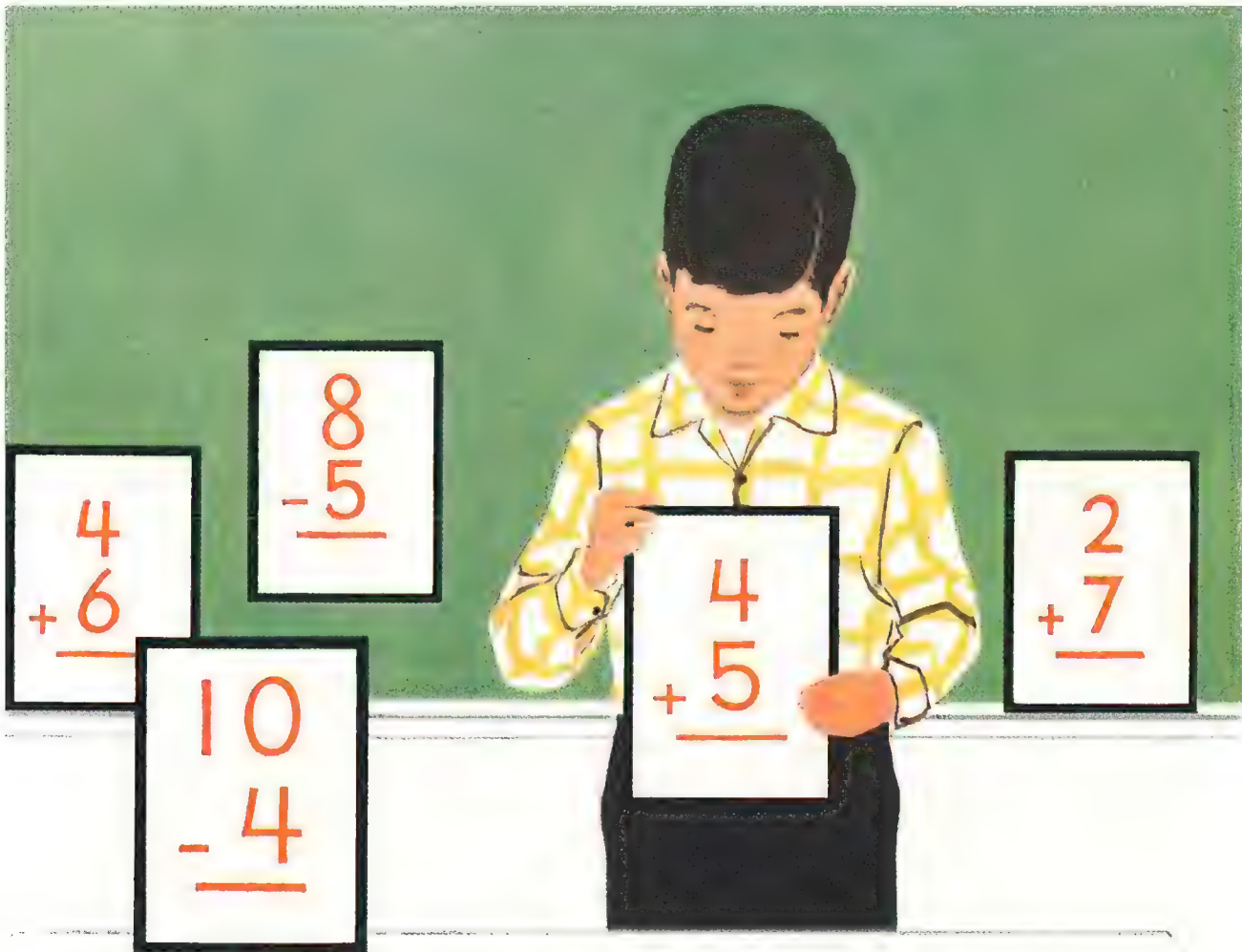
- Write just the odd numbers that you see above.
- Write just the even numbers that you see above.

Copy each number family and write the answers.

- |    |           |           |            |            |
|----|-----------|-----------|------------|------------|
| 3. | $6 + 4 =$ | $4 + 6 =$ | $10 - 4 =$ | $10 - 6 =$ |
| 4. | $5 + 3 =$ | $3 + 5 =$ | $8 - 3 =$  | $8 - 5 =$  |
| 5. | $4 + 3 =$ | $3 + 4 =$ | $7 - 3 =$  | $7 - 4 =$  |
| 6. | $7 + 2 =$ | $2 + 7 =$ | $9 - 2 =$  | $9 - 7 =$  |

Copy each example and write the answer.

- |    |  |  |  |  |  |  |   |  |  |   |
|----|--|--|--|--|--|--|---|--|--|---|
| 7. | $\begin{array}{r} 1 \\ +1 \\ \hline \end{array}$ | $\begin{array}{r} 2 \\ +2 \\ \hline \end{array}$ | $\begin{array}{r} 3 \\ +3 \\ \hline \end{array}$ | $\begin{array}{r} 4 \\ +4 \\ \hline \end{array}$ | $\begin{array}{r} 5 \\ +5 \\ \hline \end{array}$ | $\begin{array}{r} 2 \\ -1 \\ \hline \end{array}$ | $\begin{array}{r} 4 \\ -2 \\ \hline \end{array}$  | $\begin{array}{r} 6 \\ -3 \\ \hline \end{array}$ | $\begin{array}{r} 8 \\ -4 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ -5 \\ \hline \end{array}$ |
| 8. | $\begin{array}{r} 8 \\ +2 \\ \hline \end{array}$ | $\begin{array}{r} 3 \\ +6 \\ \hline \end{array}$ | $\begin{array}{r} 2 \\ +5 \\ \hline \end{array}$ | $\begin{array}{r} 3 \\ +1 \\ \hline \end{array}$ | $\begin{array}{r} 5 \\ +4 \\ \hline \end{array}$ | $\begin{array}{r} 1 \\ +2 \\ \hline \end{array}$ | $\begin{array}{r} 6 \\ +2 \\ \hline \end{array}$  | $\begin{array}{r} 8 \\ +1 \\ \hline \end{array}$ | $\begin{array}{r} 2 \\ +3 \\ \hline \end{array}$ | $\begin{array}{r} 1 \\ +6 \\ \hline \end{array}$  |
| 9. | $\begin{array}{r} 7 \\ -5 \\ \hline \end{array}$ | $\begin{array}{r} 9 \\ -4 \\ \hline \end{array}$ | $\begin{array}{r} 3 \\ -2 \\ \hline \end{array}$ | $\begin{array}{r} 7 \\ -6 \\ \hline \end{array}$ | $\begin{array}{r} 8 \\ -2 \\ \hline \end{array}$ | $\begin{array}{r} 5 \\ -3 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ -2 \\ \hline \end{array}$ | $\begin{array}{r} 9 \\ -1 \\ \hline \end{array}$ | $\begin{array}{r} 4 \\ -1 \\ \hline \end{array}$ | $\begin{array}{r} 9 \\ -6 \\ \hline \end{array}$  |



### "I Will Help You" Cards

Find out from your teacher if any of your answers were wrong in rows 7, 8, and 9 on page 24.

Make "I Will Help You" cards for the facts you find hard to remember.

The pictures at the right show the front and back of such a card. Practice looking at the front of your cards and saying the answers. Look at the back each time to see if you were right.

$$\begin{array}{r} 3 \\ +6 \\ \hline \end{array}$$

*Front*

$$\begin{array}{r} 3 \\ +6 \\ \hline 9 \end{array}$$

*Back*



## Halves and Fourths

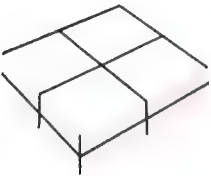
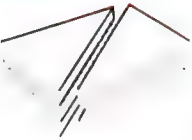
One day Jane came home from school with Mary. Mary's mother had left an apple, a sandwich, and a chocolate bar on the kitchen table for Mary.

"Let's cut each thing into two pieces," said Mary. "Then each of us can have part of each thing."

Mary cut the apple into two pieces. She was careful to make the pieces the same size. When an apple is cut into two pieces of the same size, each piece is called *one half*.

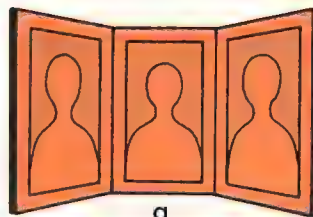
Mary did the same thing with the sandwich and the chocolate bar. What is each piece of the sandwich called? How many halves are there in the chocolate bar? How many halves are there in any whole thing?

Mary, Jane, Sue, and Ann took turns bringing a sandwich to share at recess time. It was Jane's turn. She had a peanut butter sandwich. Her mother had cut it into four pieces of the same size. Jane gave one piece to each of her friends and kept one piece herself. When a sandwich is cut into four pieces of the same size, each piece is called *one fourth*. How many fourths are there in the sandwich? How many fourths are there in any whole thing?

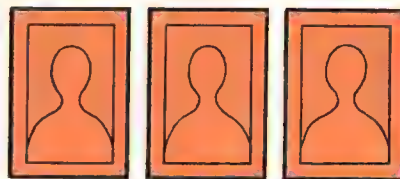


## Thirds

John had a picture frame that held three pictures. When he stood it on his desk, it looked like picture *a*. He could take it apart. Then it looked like picture *b*. All three parts were the same size. Each part was *one third* of the whole frame. How many thirds are there in the whole frame? How many thirds are there in any whole thing?

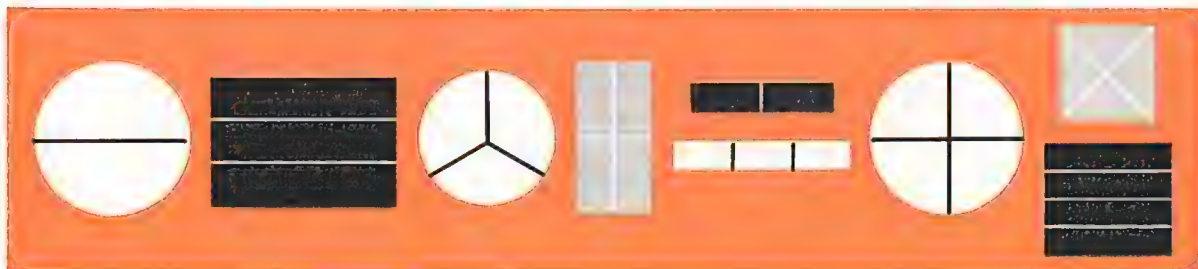


*a*



*b*

1. How many parts of the same size are shown in each of these pictures? What is each part called?



2. In any whole thing there are:  
       ?   halves;     ?   thirds;     ?   fourths.
3. Look at the pictures below. Then tell the missing letter in each sentence.



A

B

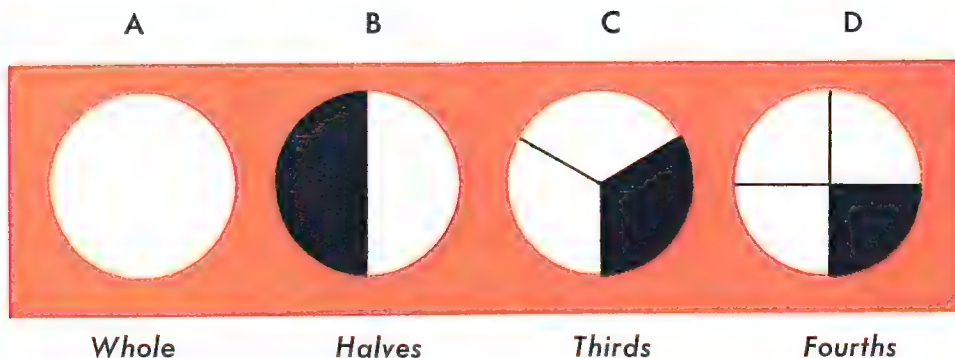
C

Cup   ?   is one-half full.

Cup   ?   is one-third full.

Cup   ?   is one-fourth full.

## Wholes, Halves, Thirds, and Fourths



1. Look at the circles above. Under A is a *whole circle*. The circle under B has been cut into halves. How many *halves* are there? What is each part called? The next circle has been cut into *thirds*. Are the parts the same in size? How many parts are there? What has the last circle been cut into? Think of two more questions to ask about it.
2. Take 4 pieces of paper the same in size and shape. Write the word *whole* on one of them. Cut the second one into halves, the third into thirds, and the last one into fourths. What words should you write on each part of the second? of the third? of the last one?
3. Lay the halves on the whole piece. How many halves does it take to make a whole?
4. In the same way, find out how many thirds and how many fourths it takes to make a whole.
5. See if you can find out which is larger:  
One half or one fourth  
One fourth or one third
6. Which is largest: one half, one third, or one fourth?



## Column Addition

One day the boys played *Spin*. Each boy had three spins.

Jack spun first. He flipped the spinner. It stopped at 2. He flipped it again. It stopped at 1. He flipped it a third time. It stopped at 5.

Jack wrote the numbers 2, 1, and 5 in a column. He added down to find his score. First he added 2 and 1. He thought “3,” because  $2 + 1 = 3$ . He remembered 3 and added 5. He wrote 8. Why? Jack’s score was 8.

Add up to check Jack’s score. Add 5 and 1. Think 6. Add 6 and 2. Write   ?  . Is your answer the same as Jack’s? Then you have checked Jack’s answer.

Copy these six examples. Add down.

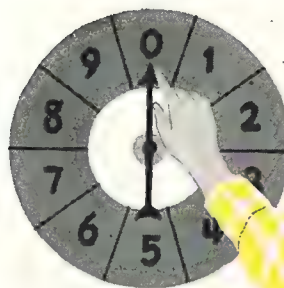
1. 
$$\begin{array}{r} 1 \\ 3 \\ 5 \end{array} \quad \begin{array}{r} 5 \\ 3 \\ 1 \end{array} \quad \begin{array}{r} 3 \\ 5 \\ 1 \end{array} \quad \begin{array}{r} 1 \\ 5 \\ 3 \end{array} \quad \begin{array}{r} 5 \\ 1 \\ 3 \end{array} \quad \begin{array}{r} 3 \\ 1 \\ 5 \end{array}$$

Are all your answers the same? They should be. The same numbers were added in the six examples.

In addition you can change the order of the numbers you add without changing the answer.

Copy these examples. Add down. Check by adding up.

2. 
$$\begin{array}{r} 3 \\ 2 \\ 1 \end{array} \quad \begin{array}{r} 2 \\ 4 \\ 3 \end{array} \quad \begin{array}{r} 1 \\ 7 \\ 2 \end{array} \quad \begin{array}{r} 3 \\ 3 \\ 1 \end{array} \quad \begin{array}{r} 4 \\ 3 \\ 1 \end{array} \quad \begin{array}{r} 2 \\ 2 \\ 4 \end{array} \quad \begin{array}{r} 3 \\ 1 \\ 1 \end{array} \quad \begin{array}{r} 5 \\ 1 \\ 2 \end{array} \quad \begin{array}{r} 6 \\ 1 \\ 3 \end{array} \quad \begin{array}{r} 2 \\ 5 \\ 3 \end{array}$$



$$\begin{array}{r} 2 \\ 1 \\ 5 \\ \hline 8 \end{array}$$



## Time to Study Time

'Round and 'round the clock hands go,  
Minutes and the hours to show.

The long hand tells the *minutes* and is called the minute hand. The short hand tells the *hours* and is called the hour hand. Which arrow, A or B, shows the way the hands move around the clock?

1. To what number does the hour hand point? the minute hand? What time does the clock picture show?
2. Little dots mark off the minute spaces on a clock. There are 5 minute spaces between the numbers 12 and 1. How many minute spaces are there between 1 and 2? How many are in the whole circle? Count by 5's to find out. Point to each of the numbers from 1 to 12 as you count. While the minute hand moves all around the circle and back to 12 again, the hour hand will go from 1 to 2. What time will it be then?

**60 minutes = 1 hour**

3. If the minute hand moves halfway around the circle, to what number will it point then? The hour hand will then be between 1 and 2. What time will it be? How many minute spaces are there between the numbers 12 and 6? 6 and 12? Count by 5's to find out.
4. Look at the clock picture. Tell where the hour hand and the minute hand will be at 12 o'clock; 6 o'clock; 9 o'clock; half past 5; half past 12.

5. In this picture, colored lines cut the minute circle into quarters. A quarter is one fourth. How many quarters are there in the whole circle?
6. How many minute spaces are there in one of the quarters? Count by 5's to find out.

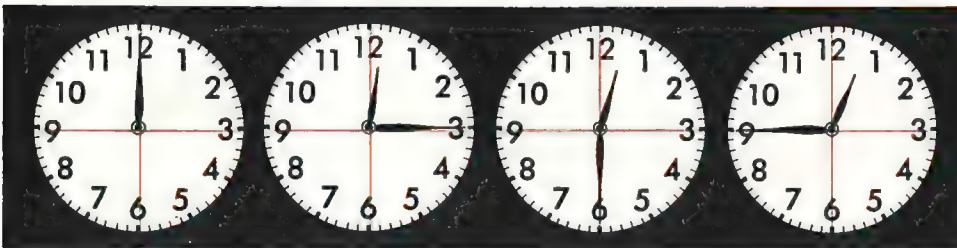


A

B

C

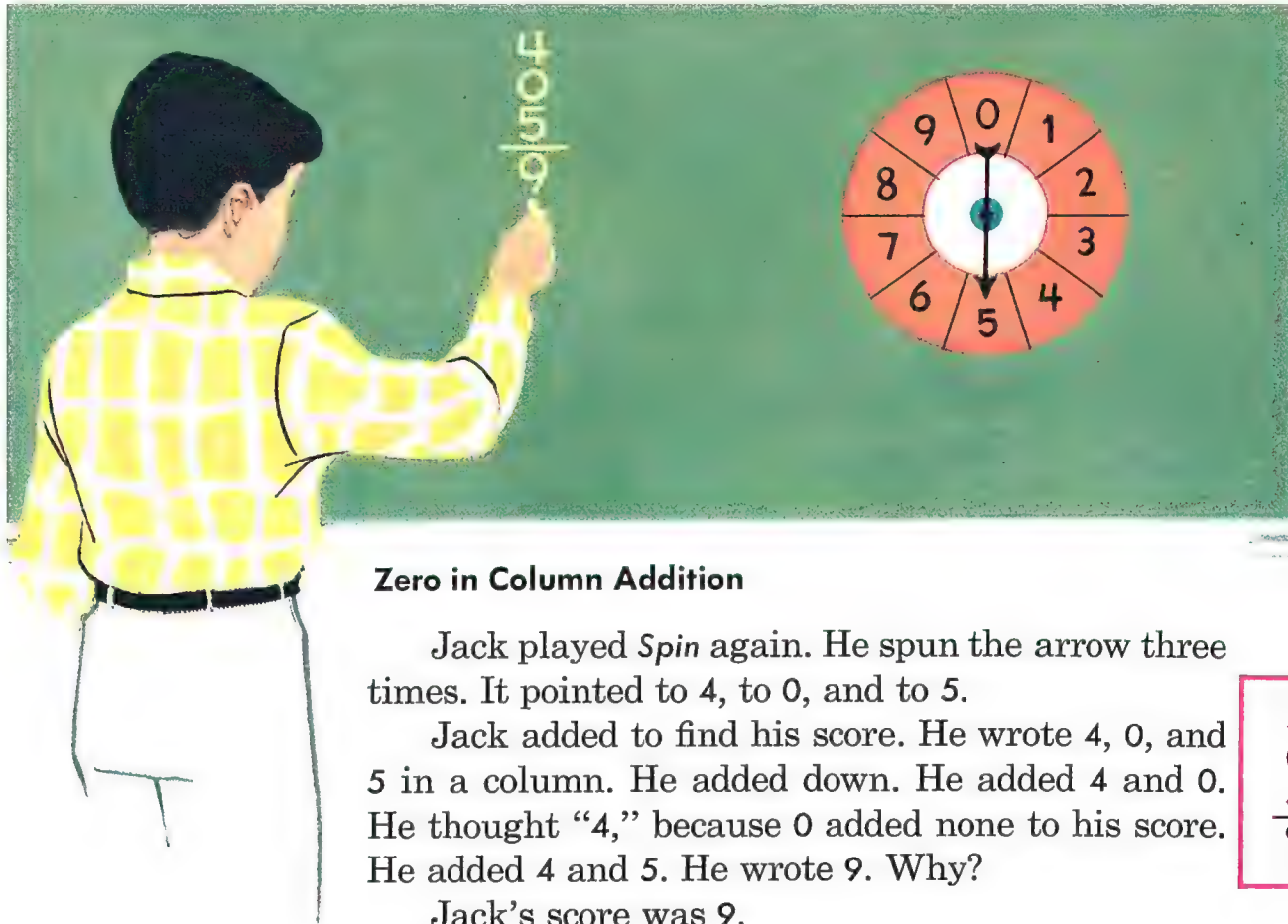
D



Study the four clock pictures. Colored lines show the quarters. Read the following sentences and say each missing number.

7. Clock A shows ? o'clock.
8. In clock B, the minute hand has gone from 12 to 3, or one quarter of the way around the clock. It has gone past ? minute spaces. The time is *quarter past* ?.
9. In clock C, the minute hand has gone from 12 to 6, or halfway around the clock. It has gone past ? minute spaces. The time is *half past* ?.
10. In clock D, the minute hand has gone from 12 around to 9. How many quarters has it gone past? How many quarters must it keep on going to get to 12 again? The hour hand is near 1. The time is *quarter of* ?.





### Zero in Column Addition

Jack played *Spin* again. He spun the arrow three times. It pointed to 4, to 0, and to 5.

Jack added to find his score. He wrote 4, 0, and 5 in a column. He added down. He added 4 and 0. He thought “4,” because 0 added none to his score. He added 4 and 5. He wrote 9. Why?

Jack’s score was 9.

Add up to check Jack’s score.  $5 + 0 + 4 = \underline{\quad ? \quad}$

Copy these examples. Add down. Check the answers by adding up.

1. 

0	3	7	8	2	3	0	7	0
1	0	0	0	0	4	4	0	2
<u>9</u>	<u>6</u>	<u>1</u>	<u>0</u>	<u>8</u>	<u>0</u>	<u>6</u>	<u>3</u>	<u>3</u>
2. 

1	1	0	2	3	0	4	9	5
0	8	0	6	7	5	0	0	0
<u>7</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>4</u>	<u>4</u>	<u>0</u>	<u>3</u>
3. 

1	0	3	5	0	4	8	6	0
0	3	0	0	7	5	0	2	2
<u>6</u>	<u>2</u>	<u>5</u>	<u>5</u>	<u>2</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>7</u>

## Adding Money in Cents

COLUMN ADDITION

- One day Tom put a nickel in his toy bank. The next day he put in 1 penny. The next day he put in 3 pennies. How much money in all did Tom put in his bank in the three days?



Study the way to think about this problem. Then copy the last column and write each missing number.

First day



or \_\_\_\_¢

Second day



or \_\_\_\_¢

Third day



or \_\_\_\_¢

In the three days, Tom put \_\_\_\_¢ in his bank.

- Betty has 1 penny, 2 pennies, and 3 pennies. Are her pennies worth as much as a nickel? To find out, add in cents. A nickel is worth how many cents?
- John has 1 nickel, 2 pennies, and 3 pennies. Is his money worth as much as a dime? Add in cents to find out. A dime is worth how many cents?

Copy and add. Be sure to write the ¢ sign.

4.	6¢	3¢	3¢	4¢	1¢	3¢	2¢	1¢	7¢	5¢
	1¢	1¢	4¢	2¢	5¢	2¢	4¢	8¢	1¢	2¢
	1¢	6¢	2¢	3¢	1¢	4¢	2¢	1¢	2¢	3¢

7.

34

1. There were 6 sailboats and 3 rowboats on the river. There were no other boats. How many boats were on the river?
2. Ann wants 6 candles on her cake. She has found 3 candles. How many more will she need?
3. Peter has 6 rabbits. He is going to give 2 of the rabbits to John. How many will he have then?
4. Jack had three turns at a beanbag game. On his first turn he made 2. On his second turn he made 3. On his third turn he made 5. What was his score?
5. Jim made a score of 9 in a beanbag game. Sam made a score of 6. Jim won the game by how much?
6. There were 6 girls and 4 boys at a party. How many fewer boys than girls were at the party?
7. Alice went to the store on an errand. It took her 2 minutes to get to the store. She was in the store 5 minutes, and it took her 2 minutes to get home. How much time in all did Alice spend on the errand?





## Finding What You Need to Study Again

Copy each example and write the answer. If you need to study something again, page numbers at the right tell you where to find it.

- |     |   |   |   |   |   |   |   |   |   |
|-----|---|---|---|---|---|---|---|---|---|
| 1.  | $\begin{array}{r} 9 \\ +0 \\ \hline \end{array}$      | $\begin{array}{r} 0 \\ +9 \\ \hline \end{array}$      | $\begin{array}{r} 0 \\ +0 \\ \hline \end{array}$      | $\begin{array}{r} 8 \\ +0 \\ \hline \end{array}$      | $\begin{array}{r} 0 \\ +8 \\ \hline \end{array}$      | $\begin{array}{r} 0 \\ +6 \\ \hline \end{array}$      | $\begin{array}{r} 6 \\ +0 \\ \hline \end{array}$      | $\begin{array}{r} 0 \\ +7 \\ \hline \end{array}$      | $\begin{array}{r} 7 \\ +0 \\ \hline \end{array}$      |
| 2.  | $\begin{array}{r} 1 \\ +1 \\ \hline \end{array}$      | $\begin{array}{r} 2 \\ +1 \\ \hline \end{array}$      | $\begin{array}{r} 1 \\ +3 \\ \hline \end{array}$      | $\begin{array}{r} 4 \\ +1 \\ \hline \end{array}$      | $\begin{array}{r} 2 \\ +2 \\ \hline \end{array}$      | $\begin{array}{r} 4 \\ +2 \\ \hline \end{array}$      | $\begin{array}{r} 2 \\ +4 \\ \hline \end{array}$      | $\begin{array}{r} 1 \\ +5 \\ \hline \end{array}$      | $\begin{array}{r} 5 \\ +1 \\ \hline \end{array}$      |
| 3.  | $\begin{array}{r} 3 \\ +4 \\ \hline \end{array}$      | $\begin{array}{r} 4 \\ +3 \\ \hline \end{array}$      | $\begin{array}{r} 5 \\ +3 \\ \hline \end{array}$      | $\begin{array}{r} 3 \\ +5 \\ \hline \end{array}$      | $\begin{array}{r} 2 \\ +5 \\ \hline \end{array}$      | $\begin{array}{r} 5 \\ +2 \\ \hline \end{array}$      | $\begin{array}{r} 2 \\ +6 \\ \hline \end{array}$      | $\begin{array}{r} 6 \\ +2 \\ \hline \end{array}$      | $\begin{array}{r} 4 \\ +4 \\ \hline \end{array}$      |
| 4.  | $\begin{array}{r} 5 \\ +5 \\ \hline \end{array}$      | $\begin{array}{r} 5 \\ +4 \\ \hline \end{array}$      | $\begin{array}{r} 4 \\ +5 \\ \hline \end{array}$      | $\begin{array}{r} 6 \\ +4 \\ \hline \end{array}$      | $\begin{array}{r} 4 \\ +6 \\ \hline \end{array}$      | $\begin{array}{r} 6 \\ +3 \\ \hline \end{array}$      | $\begin{array}{r} 3 \\ +6 \\ \hline \end{array}$      | $\begin{array}{r} 7 \\ +3 \\ \hline \end{array}$      | $\begin{array}{r} 3 \\ +7 \\ \hline \end{array}$      |
| 5.  | $\begin{array}{r} 2 \\ +7 \\ \hline \end{array}$      | $\begin{array}{r} 7 \\ +2 \\ \hline \end{array}$      | $\begin{array}{r} 8 \\ +2 \\ \hline \end{array}$      | $\begin{array}{r} 2 \\ +8 \\ \hline \end{array}$      | $\begin{array}{r} 1 \\ +8 \\ \hline \end{array}$      | $\begin{array}{r} 8 \\ +1 \\ \hline \end{array}$      | $\begin{array}{r} 1 \\ +9 \\ \hline \end{array}$      | $\begin{array}{r} 9 \\ +1 \\ \hline \end{array}$      | $\begin{array}{r} 1 \\ +7 \\ \hline \end{array}$      |
| 6.  | $\begin{array}{r} 1 \\ 2 \\ +3 \\ \hline \end{array}$ | $\begin{array}{r} 2 \\ 0 \\ +3 \\ \hline \end{array}$ | $\begin{array}{r} 3 \\ 1 \\ +4 \\ \hline \end{array}$ | $\begin{array}{r} 4 \\ 4 \\ +0 \\ \hline \end{array}$ | $\begin{array}{r} 1 \\ 4 \\ +5 \\ \hline \end{array}$ | $\begin{array}{r} 0 \\ 5 \\ +5 \\ \hline \end{array}$ | $\begin{array}{r} 0 \\ 0 \\ +9 \\ \hline \end{array}$ | $\begin{array}{r} 0 \\ 0 \\ +0 \\ \hline \end{array}$ | $\begin{array}{r} 3 \\ 2 \\ +5 \\ \hline \end{array}$ |
| 7.  | $\begin{array}{r} 9 \\ -0 \\ \hline \end{array}$      | $\begin{array}{r} 9 \\ -9 \\ \hline \end{array}$      | $\begin{array}{r} 0 \\ -0 \\ \hline \end{array}$      | $\begin{array}{r} 8 \\ -8 \\ \hline \end{array}$      | $\begin{array}{r} 8 \\ -0 \\ \hline \end{array}$      | $\begin{array}{r} 6 \\ -0 \\ \hline \end{array}$      | $\begin{array}{r} 6 \\ -6 \\ \hline \end{array}$      | $\begin{array}{r} 2 \\ -0 \\ \hline \end{array}$      | $\begin{array}{r} 2 \\ -2 \\ \hline \end{array}$      |
| 8.  | $\begin{array}{r} 2 \\ -1 \\ \hline \end{array}$      | $\begin{array}{r} 3 \\ -2 \\ \hline \end{array}$      | $\begin{array}{r} 3 \\ -1 \\ \hline \end{array}$      | $\begin{array}{r} 4 \\ -1 \\ \hline \end{array}$      | $\begin{array}{r} 4 \\ -3 \\ \hline \end{array}$      | $\begin{array}{r} 5 \\ -1 \\ \hline \end{array}$      | $\begin{array}{r} 5 \\ -4 \\ \hline \end{array}$      | $\begin{array}{r} 6 \\ -5 \\ \hline \end{array}$      | $\begin{array}{r} 6 \\ -1 \\ \hline \end{array}$      |
| 9.  | $\begin{array}{r} 7 \\ -4 \\ \hline \end{array}$      | $\begin{array}{r} 7 \\ -3 \\ \hline \end{array}$      | $\begin{array}{r} 8 \\ -3 \\ \hline \end{array}$      | $\begin{array}{r} 8 \\ -5 \\ \hline \end{array}$      | $\begin{array}{r} 7 \\ -5 \\ \hline \end{array}$      | $\begin{array}{r} 7 \\ -2 \\ \hline \end{array}$      | $\begin{array}{r} 8 \\ -6 \\ \hline \end{array}$      | $\begin{array}{r} 8 \\ -2 \\ \hline \end{array}$      | $\begin{array}{r} 8 \\ -4 \\ \hline \end{array}$      |
| 10. | $\begin{array}{r} 10 \\ -5 \\ \hline \end{array}$     | $\begin{array}{r} 9 \\ -4 \\ \hline \end{array}$      | $\begin{array}{r} 9 \\ -5 \\ \hline \end{array}$      | $\begin{array}{r} 10 \\ -4 \\ \hline \end{array}$     | $\begin{array}{r} 10 \\ -6 \\ \hline \end{array}$     | $\begin{array}{r} 9 \\ -3 \\ \hline \end{array}$      | $\begin{array}{r} 9 \\ -6 \\ \hline \end{array}$      | $\begin{array}{r} 10 \\ -3 \\ \hline \end{array}$     | $\begin{array}{r} 10 \\ -7 \\ \hline \end{array}$     |
| 11. | $\begin{array}{r} 9 \\ -7 \\ \hline \end{array}$      | $\begin{array}{r} 9 \\ -2 \\ \hline \end{array}$      | $\begin{array}{r} 10 \\ -2 \\ \hline \end{array}$     | $\begin{array}{r} 10 \\ -8 \\ \hline \end{array}$     | $\begin{array}{r} 9 \\ -8 \\ \hline \end{array}$      | $\begin{array}{r} 9 \\ -1 \\ \hline \end{array}$      | $\begin{array}{r} 10 \\ -9 \\ \hline \end{array}$     | $\begin{array}{r} 10 \\ -1 \\ \hline \end{array}$     |   |

Page

7

11, 13-15

11, 13-15

11, 13-15

11, 13-15

29, 32

7

13-15

13-15

13-15

13-15

## Finding Out What You Know

### A. Word Meanings

Copy the numbers of the sentences. Then write beside each number the word that is missing in that sentence. It is one of the four words under the sentence.

1. The number that comes just after 9 is \_\_\_\_\_.

*two      eight      ten      five*

2. This is the \_\_\_\_\_ numbered sentence.

*first      second      third      fourth*

3. The longest word in this sentence has \_\_\_\_\_ letters.

*six      seven      eight      nine*

4. Any number of things together is called a \_\_\_\_\_.

*dozen      lot      few      group*

5. A pair is a group of \_\_\_\_\_ things.

*four      two      six      five*

6. Zero means \_\_\_\_\_.

*three      two      one      none*

### B. Arithmetic Understandings

The first word in each sentence below should be *Add* or *Subtract*.

Copy the numbers of the sentences. Then write beside each number the word that belongs in that sentence.

1. \_\_\_\_\_ to put groups together.



2. \_\_\_\_\_ to take a number away.
3. \_\_\_\_\_ to find out how much more, or less, one number is than another.
4. \_\_\_\_\_ to find how many in all without counting.
5. \_\_\_\_\_ to find how many more are needed to put with 5 to make 7.
6. \_\_\_\_\_ to find how many fewer a group of 3 has than a group of 8.

### C. Number Facts and Skills

Copy each example and write the answer.

1.  $\begin{array}{r} 2 \\ +7 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ +6 \\ \hline \end{array}$   $\begin{array}{r} 8 \\ +2 \\ \hline \end{array}$   $\begin{array}{r} 4 \\ +4 \\ \hline \end{array}$   $\begin{array}{r} 7 \\ +3 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ +9 \\ \hline \end{array}$   $\begin{array}{r} 3 \\ +4 \\ \hline \end{array}$   $\begin{array}{r} 5 \\ +5 \\ \hline \end{array}$   $\begin{array}{r} 3 \\ +3 \\ \hline \end{array}$   $\begin{array}{r} 5 \\ +2 \\ \hline \end{array}$
2.  $\begin{array}{r} 10 \\ -2 \\ \hline \end{array}$   $\begin{array}{r} 7 \\ -4 \\ \hline \end{array}$   $\begin{array}{r} 9 \\ -7 \\ \hline \end{array}$   $\begin{array}{r} 10 \\ -5 \\ \hline \end{array}$   $\begin{array}{r} 7 \\ -6 \\ \hline \end{array}$   $\begin{array}{r} 6 \\ -3 \\ \hline \end{array}$   $\begin{array}{r} 8 \\ -4 \\ \hline \end{array}$   $\begin{array}{r} 7 \\ -2 \\ \hline \end{array}$   $\begin{array}{r} 10 \\ -9 \\ \hline \end{array}$   $\begin{array}{r} 10 \\ -3 \\ \hline \end{array}$
3.  $\begin{array}{r} 4 \\ 4 \\ +2 \\ \hline \end{array}$   $\begin{array}{r} 3 \\ 0 \\ +7 \\ \hline \end{array}$   $\begin{array}{r} 5 \\ 2 \\ +0 \\ \hline \end{array}$   $\begin{array}{r} 0 \\ 3 \\ +5 \\ \hline \end{array}$   $\begin{array}{r} 3 \\ 3 \\ +2 \\ \hline \end{array}$   $\begin{array}{r} 2¢ \\ 4¢ \\ +3¢ \\ \hline \end{array}$   $\begin{array}{r} 1¢ \\ 6¢ \\ +3¢ \\ \hline \end{array}$   $\begin{array}{r} 3¢ \\ 2¢ \\ +4¢ \\ \hline \end{array}$

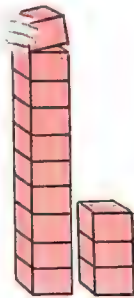
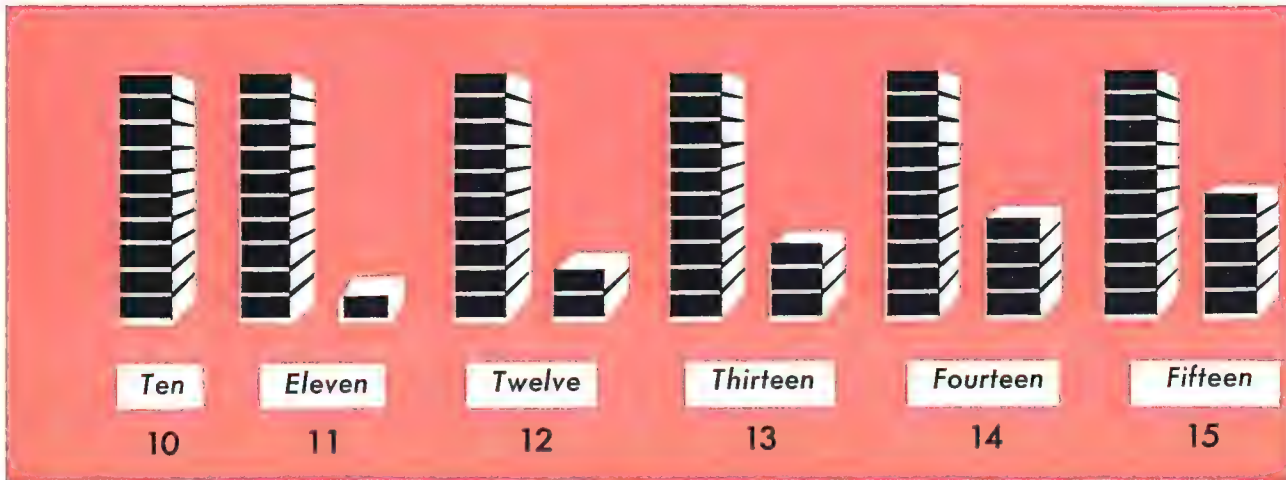


### D. Problem Solving

Copy the numbers of the problems. Solve each problem and write the answer beside the number of that problem.

1. Fred had 6 cents in his pocket. He lost all but 4 cents of his money. How much did he lose?
2. Ann had 7 cents. Her mother gave her 3 cents. Then how much money did she have?
3. Tom had 8 cards. Dick had 2 cards. How many fewer cards did Dick have than Tom?
4. Joan had 8 paper dolls. Ruth had 2 paper dolls. How many more did Joan have than Ruth?





13  
Thirteen

### Two-Place Numbers: Eleven to Twenty

The boys and girls in the third grade used stacks of blocks to show numbers.

Barbara showed the number thirteen. First she made a stack of ten blocks. Then she put beside it a stack of three blocks.

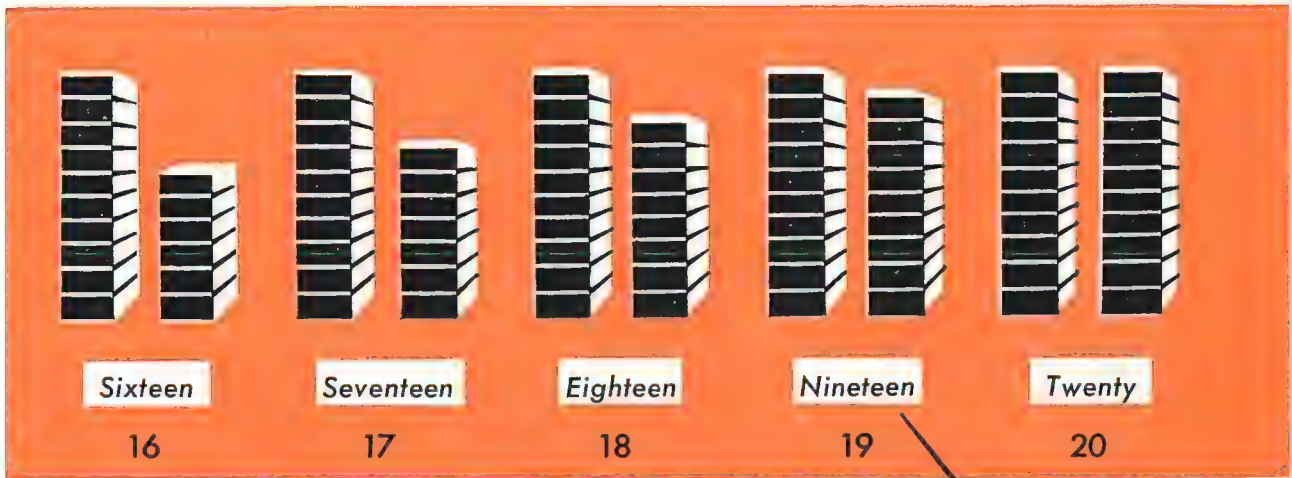
Thirteen means three and ten, or ten and three.

thir — teen

3 and 10

# Working with Numbers

## Eleven to Twenty



Study the pictures of the blocks.

1. Read the word under each picture.
2. Read the number under each picture.
3. Read the words that end in *teen*.
4. What does the word *fourteen* mean?
5. What do you think the word *eleven* means?
6. What do you think the word *twelve* means?
7. Tell what *fifteen* means; *seventeen*; *nineteen*.
8. How many stacks of ten were used to show the number twenty?
9. What do you think *twenty* should mean?
10. Count from 10 to 20.
11. Write the numbers from 11 to 20.
12. How many stacks of ten were used in showing the number 10? 12? 13? 17? 18?





## Finding How Many by Counting

“How much money do I have?” asked Jane. She showed Bob 1 dime and 4 pennies.

“I’ll tell you how to find out,” he said. “A dime is worth 10 cents. Start with 10 and count 4 more.”

Think:



and



Say:

10,

11,

12,

13,

14.

“That is easy,” said Jane. “I have 14 cents.”

How much money is in each group below?

1.



2.



3. What number comes just after 14? 16? 18? 19?

4. What number comes just before 14? 16? 18? 20?

Tell the missing numbers in each row.

5. 10, 11, 12,   ?  , 14,   ?  

6. 12,   ?  ,   ?  , 15,   ?  , 17

7.   ?  , 12,   ?  , 14,   ?  , 16

8.   ?  , 16,   ?  ,   ?  , 19,   ?



Left



Right



## Left and Right

Here is a picture of Jane. She is holding up her left hand.

1. Raise your left hand.
2. Raise your right hand.
3. Look at the picture of the dime and the penny. Which is at the left, the dime or the penny? Which is at the right, the dime or the penny?



## Two-Place Numbers

We use *figures* to write numbers. These are the figures we use:

0 1 2 3 4 5 6 7 8 9

How many different figures are there?

Each number from 0 through 9 has one figure. They are *one-place* numbers. Each number from 10 through 99 has two figures. They are *two-place* numbers.

The number 13 is written with the figures 1 and 3. The figure 1 means 1 ten. It is written at the left. It is in tens place. The figure 3 means 3 ones. It is written at the right. It is in ones place.

The chart at the right is a place-value chart.

1. Read the numbers shown on the chart.
2. In each number shown, which figure is in ones place? Which figure is in tens place?
3. How many tens and how many ones are shown by the figures in each number?

Tens Place	Ones Place
1	3
1	5
1	6
1	7
1	8
1	9
1	0

## Studying a Number Chart

Study the number chart. Use it to help you do the things this page tells you to do.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

1. Read each row of numbers from left to right.
2. Read the chart from 1 to 20; from 20 to 1.

In each row each number is 1 more than the next number to its left, and 1 less than the next number to its right.

Copy each row of examples and write the answers. Count forward or backward on the chart to find each answer.

3.  $1 + 1 =$        $2 + 1 =$        $3 + 1 =$        $9 + 1 =$
4.  $11 + 1 =$        $12 + 1 =$        $13 + 1 =$        $19 + 1 =$
5.  $2 - 1 =$        $3 - 1 =$        $4 - 1 =$        $10 - 1 =$
6.  $12 - 1 =$        $13 - 1 =$        $14 - 1 =$        $20 - 1 =$

Each number in the second row of the number chart is 10 more than the number over it.

Copy each row of examples and add. Use the chart for help if you need it.

7.  $\begin{array}{r} 1 \\ 10 \end{array}$     $\begin{array}{r} 10 \\ 1 \end{array}$     $\begin{array}{r} 2 \\ 10 \end{array}$     $\begin{array}{r} 10 \\ 2 \end{array}$     $\begin{array}{r} 3 \\ 10 \end{array}$     $\begin{array}{r} 10 \\ 3 \end{array}$     $\begin{array}{r} 4 \\ 10 \end{array}$     $\begin{array}{r} 10 \\ 4 \end{array}$     $\begin{array}{r} 5 \\ 10 \end{array}$     $\begin{array}{r} 10 \\ 5 \end{array}$
8.  $\begin{array}{r} 6 \\ 10 \end{array}$     $\begin{array}{r} 10 \\ 6 \end{array}$     $\begin{array}{r} 7 \\ 10 \end{array}$     $\begin{array}{r} 10 \\ 7 \end{array}$     $\begin{array}{r} 8 \\ 10 \end{array}$     $\begin{array}{r} 10 \\ 8 \end{array}$     $\begin{array}{r} 9 \\ 10 \end{array}$     $\begin{array}{r} 10 \\ 9 \end{array}$     $\begin{array}{r} 10 \\ 10 \end{array}$

9. What number is 2 more than 10?   11?   12?   13?   14?
10. What number is 2 less than 20?   19?   18?   17?   16?

## Counting by Tens to One Hundred

Tom has been saving pennies. He put them in stacks of ten. Then he counted the pennies by tens.

Tom pointed to the first stack and said, "Ten." He pointed to the second stack and said, "Twenty." He counted like this to one hundred.

All together Tom has saved 100 pennies.



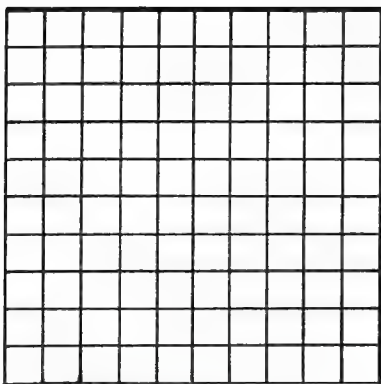
1. Can you count by tens to one hundred? Say the numbers below.

10 <i>Ten</i>	20 <i>Twenty</i>	30 <i>Thirty</i>	40 <i>Forty</i>	50 <i>Fifty</i>
60 <i>Sixty</i>	70 <i>Seventy</i>	80 <i>Eighty</i>	90 <i>Ninety</i>	100 <i>One Hundred</i>

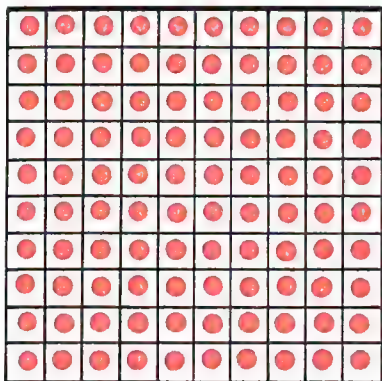
You are counting by 10's when you count 10, 20, 30, and so on.

2. Try to count by 10's without looking at your book.
3. Count Tom's pennies by 10's. Point to each stack as you count.
4. Copy the numbers from the chart, using figures.
5. Write the names of the numbers you have just copied from the chart.

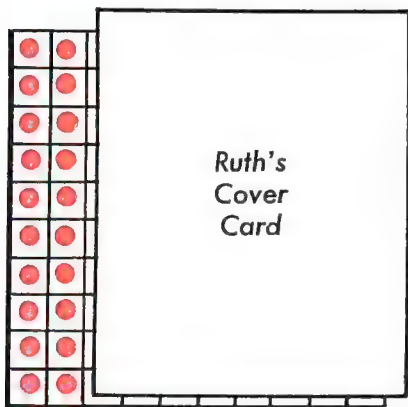




*Ruth's Square Card*



*Card with Seals*



*Columns of Seals*

## Showing Tens

1. How many rows of squares has Ruth's square card?
2. How many squares are in each row of Ruth's card?

A row goes across the page.

3. How many columns of squares has Ruth's card?
4. How many squares are in each column?

A column goes down the page.

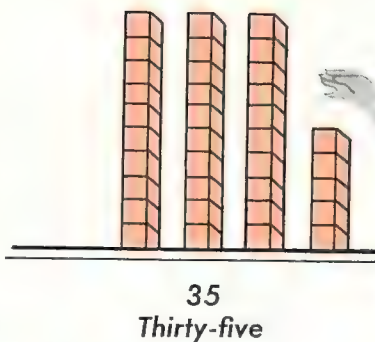
5. Count the squares by tens on Ruth's square card. How many tens are there?

Ruth stuck a seal in each square. Then she used another white card as a cover card.

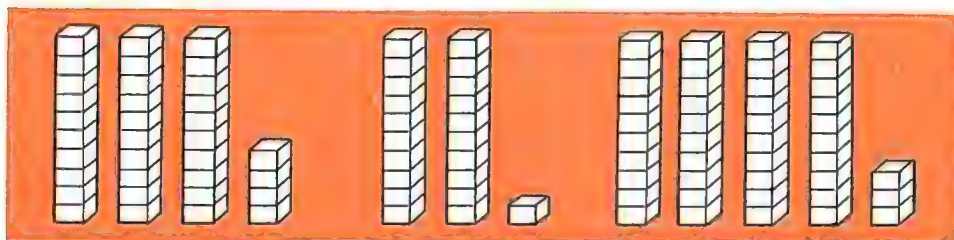
6. How many columns are showing?
7. How many seals are showing?
8. Twenty means   ?   tens.
9. Make a cover card just like Ruth's. Use your cover card on the card with seals. Show that thirty means 3 tens.
10. Use your cover card on the card with seals to show how many tens fifty means; seventy; forty; eighty; sixty; ninety; ten; thirty.

## Meaning of Two-Place Numbers

Mary stacked her blocks to show the number 35. She made 3 stacks of 10 blocks and a stack of 5 more.



1. What numbers do these stacks of blocks show?



The numbers from 10 through 99 are *two-place* numbers. In all these numbers, the figure at the left means tens. The figure at the right means ones.

2. In 34 the 3 means 3 tens; the 4 means 4 ones. How many tens are in these numbers? How many ones?

21      43      54      64      74      84      94

3. In 20 the 2 means 2 tens; the 0 means no ones.

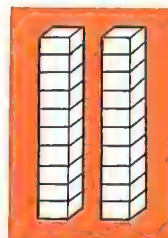
Numbers from 10 to 100 are easy to understand when you think of the number of tens they have. How many tens and ones are in these numbers?

30      40      50      60      70      80      90

4. How many tens and ones are in these numbers?

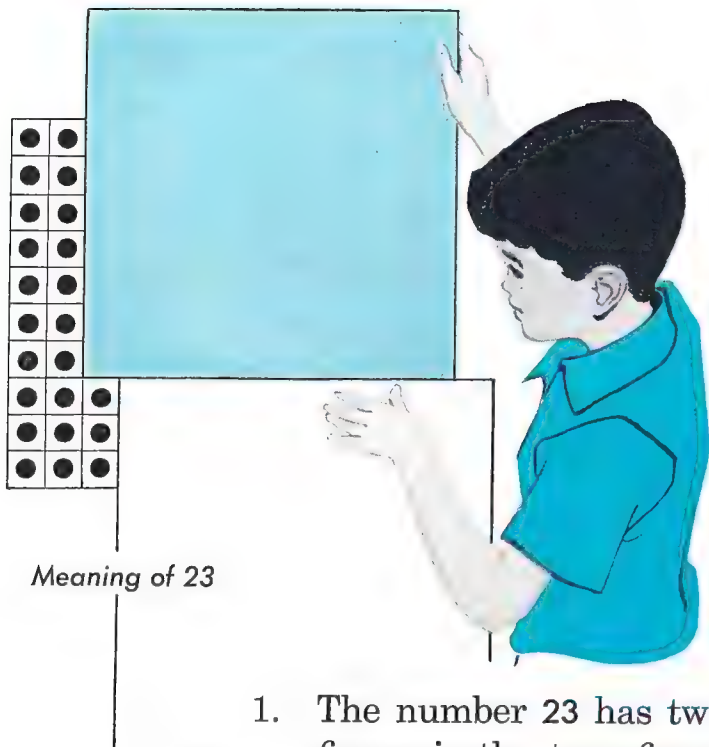
18    34    69    93    55    70    86    91    22    47

5. Write these two-place numbers with figures: twenty-three, forty-five, sixty, thirty-two, fifty-four, seventy-eight, sixty-seven, seventeen.



20  
Twenty





## Tens and Ones

Dick borrowed Ruth's card of seals. He used two cover cards.

Dick showed that 23 means 2 tens and 3 ones.

Do you see the 2 tens in the picture? Do you see the 3 ones?

In the number 23, which figure is at the left? Which figure is at the right?

1. The number 23 has two figures, a 2 and a 3. Which figure is the tens figure? Which is the ones figure?
2. The number 23 is a two-place number. Why? Which figure is in ones place? Which figure is in tens place?
3. Make two cards like those that Dick used. Try them on the full card of seals on page 44. See if you can show these numbers:

24 35 53 42 76 67 98 89 26 62

Say each missing number.

4. 45 means   ?   tens and   ?   ones.
5. In 56, the tens figure is   ?  . The ones figure is   ?  .
6. Write each of these numbers with figures: eighty-one, thirty-nine, ninety-three, sixteen, sixty.
7. Practice writing each of the ten figures. Practice until yours are as easy to read as these.

0 1 2 3 4 5 6 7 8 9



## Counting on a Number Chart

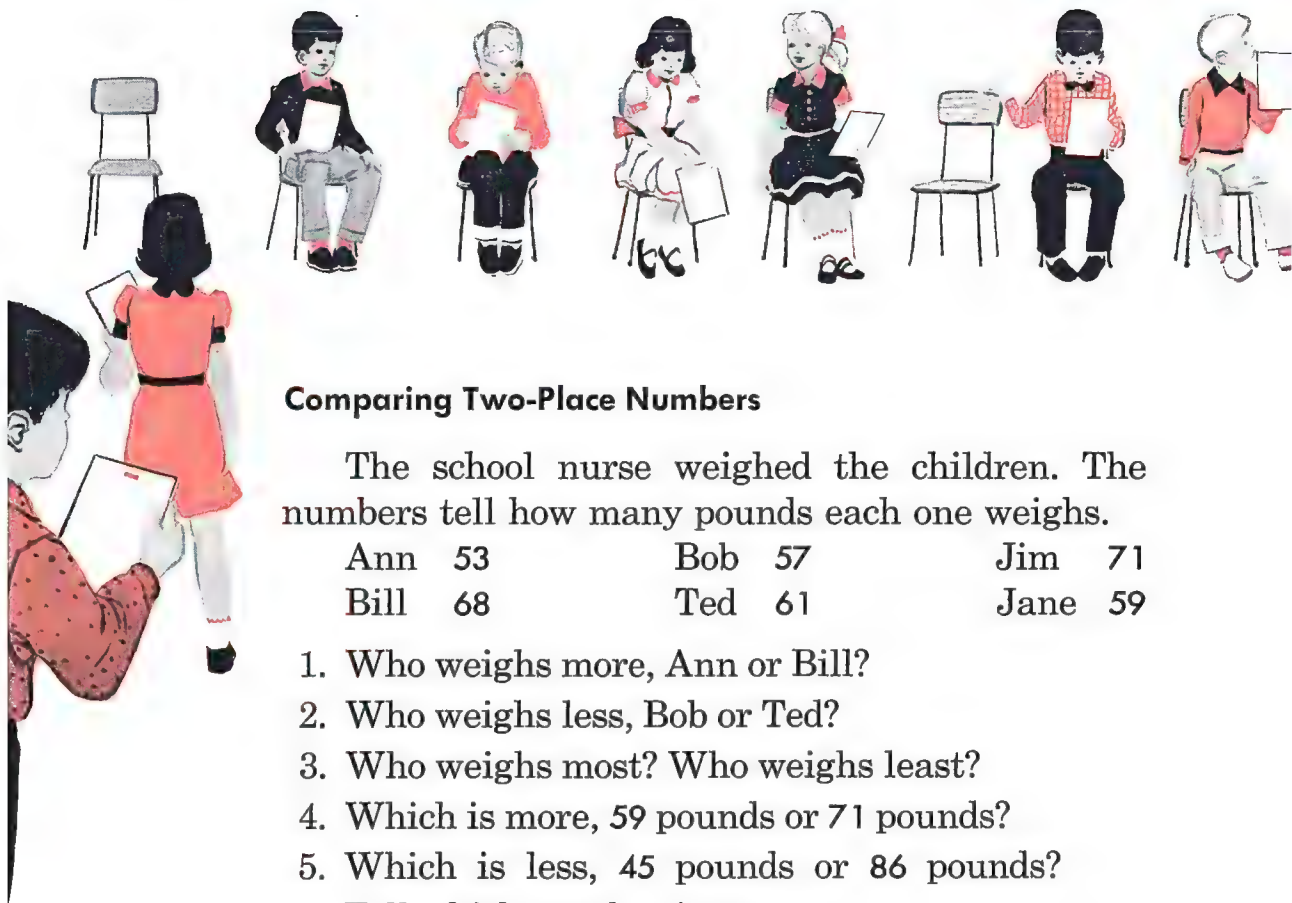
Ann had a square card like Ruth's card on page 44. She filled it with numbers in rows and in columns like the card here.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Number Chart

1. Say the numbers row by row from left to right. You will be counting *forward* by ones.
  2. Say the numbers row by row from right to left. You will be counting *backward* by ones.
  3. Say the numbers down each column. Start with 1. You will be counting forward by tens.
  4. Say the numbers up each column. Start with 100. You will be counting backward by tens.
- Use the number chart to answer these questions.
5. What number is between 12 and 14? 42 and 44?
  6. What is the last two-place number on the chart?
  7. Count by fives on the chart. Start with 5.
  8. Count by threes on the chart from 3 to 27.
  9. Is the number 30 nearer to 10 or to 100?
  10. Is the number 70 nearer to 10 or to 100?
  11. This row should be like a row on the chart. What numbers are missing? 11 12 14 17 19
  12. What are the missing numbers in the column at the right? Try to tell without looking at the chart.

4  
14  
34  
64  
94



### Comparing Two-Place Numbers

The school nurse weighed the children. The numbers tell how many pounds each one weighs.

Ann	53	Bob	57	Jim	71
Bill	68	Ted	61	Jane	59

1. Who weighs more, Ann or Bill?
2. Who weighs less, Bob or Ted?
3. Who weighs most? Who weighs least?
4. Which is more, 59 pounds or 71 pounds?
5. Which is less, 45 pounds or 86 pounds?

Tell which number is more:

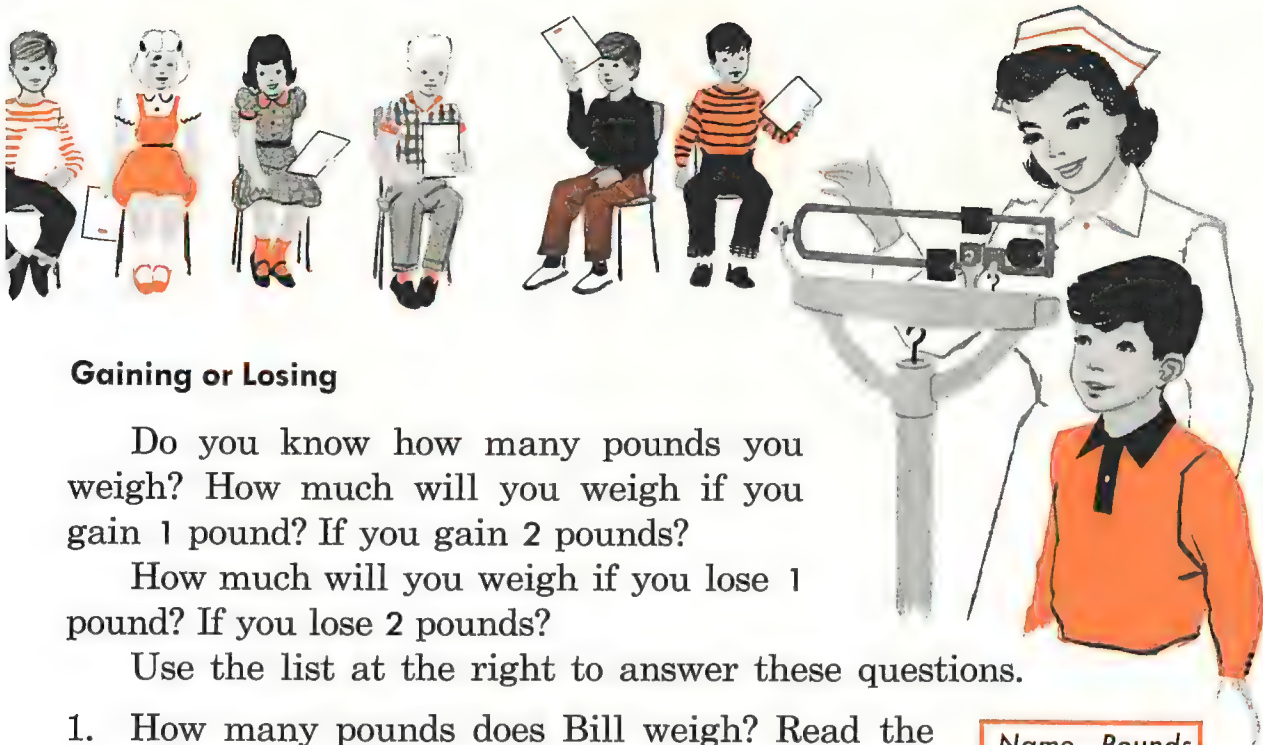
- |              |           |           |
|--------------|-----------|-----------|
| 6. 15 or 23? | 79 or 99? | 24 or 16? |
| 7. 51 or 38? | 86 or 77? | 42 or 43? |
| 8. 38 or 32? | 45 or 21? | 37 or 39? |

Tell which number is less:

- |               |           |           |
|---------------|-----------|-----------|
| 9. 21 or 19?  | 46 or 51? | 89 or 99? |
| 10. 82 or 67? | 11 or 10? | 56 or 71? |
| 11. 35 or 45? | 91 or 81? | 65 or 70? |

There are three numbers in each group below. Put them in order from smallest to largest.

- |                |            |            |
|----------------|------------|------------|
| 12. 34, 17, 92 | 98, 75, 85 | 16, 10, 22 |
| 13. 65, 62, 21 | 14, 53, 41 | 80, 79, 78 |



### Gaining or Losing

Do you know how many pounds you weigh? How much will you weigh if you gain 1 pound? If you gain 2 pounds?

How much will you weigh if you lose 1 pound? If you lose 2 pounds?

Use the list at the right to answer these questions.

1. How many pounds does Bill weigh? Read the number of pounds each boy weighs.
2. How much will each boy weigh if he gains 1 pound? If he gains 2 pounds?
3. How much will each boy weigh if he loses 1 pound? If he loses 2 pounds?

Name	Pounds
Bill	63
Bob	65
Dick	54
Jack	72
Jim	66
Joe	58
Mike	73
Sam	64
Ted	57
Tom	76

Use the number chart on page 47 if you need it to answer these questions.

4. What number is 1 more than each of these?

31          65          57          78          86          98

5. What number is 2 more than each of these?

57          66          85          97          43          74

6. What number is 1 less than each of these?

49          88          77          66          55          99

7. What number is 2 less than each of these?

49          58          97          86          65          99





### Quarts, Pints, Half Pints

The third grade boys and girls had a table covered with oilcloth. They called it a “measuring table.”

One morning there were milk bottles of different sizes on the table. There was a quart bottle, a pint bottle, and a half-pint bottle.

1. Bill filled the pint bottle with water. He poured it into the quart bottle. He filled the pint bottle with water again and poured it into the quart bottle. Then the quart bottle was full.

How many pints of water did Bill pour into the quart bottle? How many pints will fill a quart?

2. Use a quart bottle, a pint bottle, and a half-pint bottle to show that:

$$2 \text{ pints} = 1 \text{ quart}$$

$$2 \text{ half pints} = 1 \text{ pint}$$

$$4 \text{ half pints} = 1 \text{ quart}$$

## Adding One-Place Numbers to Two-Place Numbers

If you need help with the questions and examples on this page, use this chart.

1. Is the answer to this addition example right?

$$42 + 5 = 47$$

Copy these examples and write the answers.

- |             |          |          |          |          |
|-------------|----------|----------|----------|----------|
| 2. $34 + 3$ | $51 + 7$ | $75 + 4$ | $90 + 5$ | $23 + 2$ |
| 3. $16 + 2$ | $82 + 7$ | $68 + 1$ | $91 + 5$ | $61 + 8$ |
| 4. $56 + 3$ | $23 + 5$ | $42 + 6$ | $82 + 3$ | $71 + 6$ |
| 5. $35 + 2$ | $13 + 3$ | $47 + 2$ | $54 + 4$ | $76 + 1$ |
| 6. $95 + 3$ | $34 + 1$ | $23 + 6$ | $84 + 5$ | $30 + 6$ |

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

## Subtracting One-Place Numbers from Two-Place Numbers

Remember to use the chart if you need help.

1. Is the answer to this subtraction example right?

$$47 - 5 = 42$$

Copy these examples and write the answers.

- |             |          |          |          |          |
|-------------|----------|----------|----------|----------|
| 2. $37 - 3$ | $58 - 7$ | $79 - 4$ | $95 - 5$ | $25 - 2$ |
| 3. $18 - 2$ | $89 - 7$ | $69 - 1$ | $48 - 3$ | $80 - 0$ |
| 4. $64 - 1$ | $83 - 3$ | $94 - 2$ | $74 - 3$ | $59 - 9$ |
| 5. $27 - 6$ | $82 - 1$ | $45 - 4$ | $76 - 5$ | $87 - 5$ |
| 6. $66 - 3$ | $98 - 6$ | $37 - 4$ | $58 - 5$ | $36 - 4$ |

## Adding Tens

Sue had 3 dimes in her purse. Sue's mother gave her 3 more dimes. "Now you have just enough to go to the picture show," she said.

How much did it cost to go to the picture show?

You can find out by adding Sue's dimes or by adding cents, like this:

In Sue's purse		3 dimes, worth 30 cents
From Sue's mother		+ 3 dimes, worth <u>30 cents</u>
Cost of picture show		<u>    </u> ? <u>    </u> dimes, worth <u>    </u> ? <u>    </u> cents

Adding tens is like adding dimes, because a dime is worth 10 cents.

- Write these numbers without using the word *tens*.  
5 tens; 7 tens; 4 tens; 8 tens; 6 tens; 2 tens
- How much is  $30 + 30$ ? Think of adding tens.

$$\begin{array}{r}
 3 \text{ tens, or } 30 \\
 + 3 \text{ tens, or } 30 \\
 \hline
 ? \text{ tens, or } ?
 \end{array}$$

Copy and add.

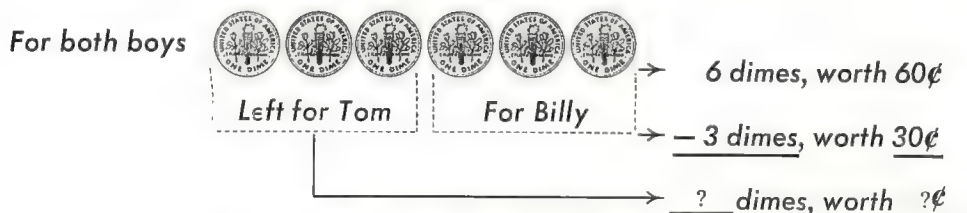
- |    |   |   |   |   |   |   |   |
|----|---|---|---|---|---|---|---|
| 3. | $\begin{array}{r} 30 \\ 20 \\ \hline \end{array}$ | $\begin{array}{r} 20 \\ 60 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ 80 \\ \hline \end{array}$ | $\begin{array}{r} 40 \\ 40 \\ \hline \end{array}$ | $\begin{array}{r} 60 \\ 20 \\ \hline \end{array}$ | $\begin{array}{r} 50 \\ 10 \\ \hline \end{array}$ | $\begin{array}{r} 40 \\ 20 \\ \hline \end{array}$ |
| 4. | $\begin{array}{r} 20 \\ 10 \\ \hline \end{array}$ | $\begin{array}{r} 40 \\ 10 \\ \hline \end{array}$ | $\begin{array}{r} 50 \\ 30 \\ \hline \end{array}$ | $\begin{array}{r} 40 \\ 30 \\ \hline \end{array}$ | $\begin{array}{r} 70 \\ 10 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ 10 \\ \hline \end{array}$ | $\begin{array}{r} 60 \\ 30 \\ \hline \end{array}$ |
| 5. | $\begin{array}{r} 20 \\ 70 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ 60 \\ \hline \end{array}$ | $\begin{array}{r} 30 \\ 50 \\ \hline \end{array}$ | $\begin{array}{r} 70 \\ 20 \\ \hline \end{array}$ | $\begin{array}{r} 30 \\ 40 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ 70 \\ \hline \end{array}$ | $\begin{array}{r} 50 \\ 20 \\ \hline \end{array}$ |
| 6. | $\begin{array}{r} 30 \\ 10 \\ \hline \end{array}$ | $\begin{array}{r} 30 \\ 60 \\ \hline \end{array}$ | $\begin{array}{r} 20 \\ 40 \\ \hline \end{array}$ | $\begin{array}{r} 50 \\ 40 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ 50 \\ \hline \end{array}$ | $\begin{array}{r} 20 \\ 20 \\ \hline \end{array}$ | $\begin{array}{r} 80 \\ 10 \\ \hline \end{array}$ |



## Subtracting Tens

"Here is 60 cents," said Tom's father as he gave Tom 6 dimes. "Give Billy 30 cents and keep what is left for yourself."

1. Could Tom give Billy 30 cents with the dimes his father gave him? How?
2. How much money would Tom have left? You can find out by subtracting dimes, like this:



Subtracting tens is like subtracting dimes, because a dime is worth 10 cents.

If you can subtract 3 tens from 6 tens, you can subtract 30 from 60.

3. How much is  $60 - 30$ ? Think of subtracting tens.

$$\begin{array}{r}
 6 \text{ tens, or } 60 \\
 - 3 \text{ tens, or } 30 \\
 \hline
 ? \text{ tens, or } ?
 \end{array}$$

Copy and subtract.

4. 

70	50	80	60	40	90	80
<u>20</u>	<u>30</u>	<u>40</u>	<u>10</u>	<u>20</u>	<u>30</u>	<u>20</u>
5. 

60	90	80	80	90	70	50
<u>20</u>	<u>40</u>	<u>70</u>	<u>30</u>	<u>60</u>	<u>50</u>	<u>20</u>

Solve these problems.

6. Ann had 50 shells. Joan had 30. Ann had how many more shells than Joan?
7. How many fewer cards is 40 cards than 70 cards?



## Adding Two-Place Numbers

The children planted 36 tulip bulbs and 32 jonquil bulbs. How many bulbs did they plant in all?

What do you do to find how many in all?

Write the numbers in columns. Write ones under ones. Write tens under tens. Then add.

$$\begin{array}{r} 36 \\ +32 \\ \hline 68 \end{array}$$

Add the ones first. Add down.  $6 + 2 = \underline{\quad ? \quad}$  Write 8 in ones place.

Now add the tens. Add down.  $3 + 3 = \underline{\quad ? \quad}$  Write 6 in tens place.

The children planted  $\underline{\quad ? \quad}$  bulbs in all.

To add two-place numbers, first add the ones, then add the tens.

Copy these examples and add.

$$\begin{array}{r} 1. \quad 16 \quad 51 \quad 82 \quad 65 \quad 24 \quad 43 \quad 22 \quad 56 \\ \quad 23 \quad 34 \quad 15 \quad 24 \quad 64 \quad 13 \quad 57 \quad 21 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 15 \quad 33 \quad 41 \quad 52 \quad 45 \quad 24 \quad 61 \quad 85 \\ \quad 84 \quad 53 \quad 37 \quad 16 \quad 11 \quad 72 \quad 36 \quad 12 \\ \hline \end{array}$$

Solve these problems.

3. When the tulips bloomed, Jane picked 12 red tulips and 14 yellow tulips. How many in all did she pick?
4. One day 11 jonquils were in bloom. The next day 12 more were in bloom. How many jonquils in all were in bloom on the second day?

## Subtracting Two-Place Numbers

Tom had 58 chickens. If he sold 46 of them, how many chickens would he have left?

What do you do to find how many are left?

Write 46 under 58. Write ones under ones. Write tens under tens. Then subtract.

Subtract the ones first.  $8 - 6 = \underline{\quad ? \quad}$  What figure will you put in ones place?

Subtract the tens.  $5 - 4 = \underline{\quad ? \quad}$  What figure will you put in tens place?

Tom would have   ?   chickens left.

58
<u>-46</u>
12

To subtract two-place numbers, first subtract the ones, then subtract the tens.

Copy these examples and subtract.

- |    |   |   |   |   |   |   |   |   |
|----|---|---|---|---|---|---|---|---|
| 1. | $\begin{array}{r} 85 \\ \underline{23} \end{array}$ | $\begin{array}{r} 89 \\ \underline{24} \end{array}$ | $\begin{array}{r} 37 \\ \underline{23} \end{array}$ | $\begin{array}{r} 97 \\ \underline{15} \end{array}$ | $\begin{array}{r} 56 \\ \underline{13} \end{array}$ | $\begin{array}{r} 88 \\ \underline{64} \end{array}$ | $\begin{array}{r} 96 \\ \underline{54} \end{array}$ | $\begin{array}{r} 78 \\ \underline{41} \end{array}$ |
| 2. | $\begin{array}{r} 65 \\ \underline{42} \end{array}$ | $\begin{array}{r} 95 \\ \underline{74} \end{array}$ | $\begin{array}{r} 74 \\ \underline{13} \end{array}$ | $\begin{array}{r} 59 \\ \underline{24} \end{array}$ | $\begin{array}{r} 66 \\ \underline{31} \end{array}$ | $\begin{array}{r} 82 \\ \underline{41} \end{array}$ | $\begin{array}{r} 75 \\ \underline{13} \end{array}$ | $\begin{array}{r} 37 \\ \underline{16} \end{array}$ |

Solve these problems.

- Ruth had 56 beads. She strung 44 of them. How many beads did she have left to string?
- Dick was supposed to practice 35 minutes on his music. He practiced 23 minutes. How many minutes were left for him to practice?
- Jane had a piece of ribbon 48 inches long. She cut off a piece 36 inches long. How many inches of ribbon were left?







## Adding Dimes and Pennies

Tony gave 2 dimes and 4 pennies to the Junior Red Cross. Kay gave 3 dimes and 2 pennies. How much money did they give together?

John said, "Let's add the dimes and pennies, like this:

$$\begin{array}{r} 2 \text{ dimes} \quad 4 \text{ pennies} \\ + 3 \text{ dimes} \quad 2 \text{ pennies} \\ \hline 5 \text{ dimes} \quad 6 \text{ pennies} \end{array}$$

"Together Tony and Kay gave 5 dimes and 6 pennies."

Alice said, "2 dimes and 4 pennies are worth 24 cents. 3 dimes and 2 pennies are worth 32 cents. We could begin with cents. We could write 32 under 24 with ones under ones and tens under tens. We write the cent sign to show that we are talking about cents, but we really just have two-place numbers to add.

$$\begin{array}{r} 24\text{¢} \\ + 32\text{¢} \\ \hline 56\text{¢} \end{array}$$

"Add the ones first.  $4 + 2 = 6$ . Write 6.

"Then add the tens.  $2 + 3 = 5$ . Write 5.

"The answer is 56, so 56¢ tells how much money Tony and Kay gave together."

1. Sue had an empty bank. One week she put 35¢ in it. The next week she put in 23¢. How much money in all did Sue put in her bank?

Copy and add. Write ¢ after each answer.

2.  $\begin{array}{r} 13\text{¢} \\ 23\text{¢} \\ \hline \end{array}$      $\begin{array}{r} 45\text{¢} \\ 31\text{¢} \\ \hline \end{array}$      $\begin{array}{r} 62\text{¢} \\ 23\text{¢} \\ \hline \end{array}$      $\begin{array}{r} 12\text{¢} \\ 72\text{¢} \\ \hline \end{array}$      $\begin{array}{r} 37\text{¢} \\ 12\text{¢} \\ \hline \end{array}$      $\begin{array}{r} 36\text{¢} \\ 32\text{¢} \\ \hline \end{array}$      $\begin{array}{r} 23\text{¢} \\ 16\text{¢} \\ \hline \end{array}$      $\begin{array}{r} 35\text{¢} \\ 42\text{¢} \\ \hline \end{array}$
3.  $\begin{array}{r} 53\text{¢} \\ 25\text{¢} \\ \hline \end{array}$      $\begin{array}{r} 16\text{¢} \\ 31\text{¢} \\ \hline \end{array}$      $\begin{array}{r} 42\text{¢} \\ 31\text{¢} \\ \hline \end{array}$      $\begin{array}{r} 14\text{¢} \\ 53\text{¢} \\ \hline \end{array}$      $\begin{array}{r} 13\text{¢} \\ 32\text{¢} \\ \hline \end{array}$      $\begin{array}{r} 52\text{¢} \\ 23\text{¢} \\ \hline \end{array}$      $\begin{array}{r} 14\text{¢} \\ 72\text{¢} \\ \hline \end{array}$      $\begin{array}{r} 32\text{¢} \\ 57\text{¢} \\ \hline \end{array}$

## Subtracting Dimes and Pennies

Jane had 6 dimes and 7 pennies. She gave 4 dimes and 2 pennies to the Junior Red Cross. How much money did she have left?

"Let's start the way Alice did when she added," said John. "Let's change the dimes and pennies to cents first. 6 dimes and 7 pennies are worth 67 cents. 4 dimes and 2 pennies are worth 42 cents. Jane had 67 cents and gave away 42 cents. We have to subtract 42 from 67 to find how much she had left. So we write 42 under 67 with ones under ones and tens under tens.

"We subtract the ones first.  $7 - 2 = 5$ . Write 5.

"Then we subtract the tens.  $6 - 4 = 2$ . Write 2. The answer is 25."

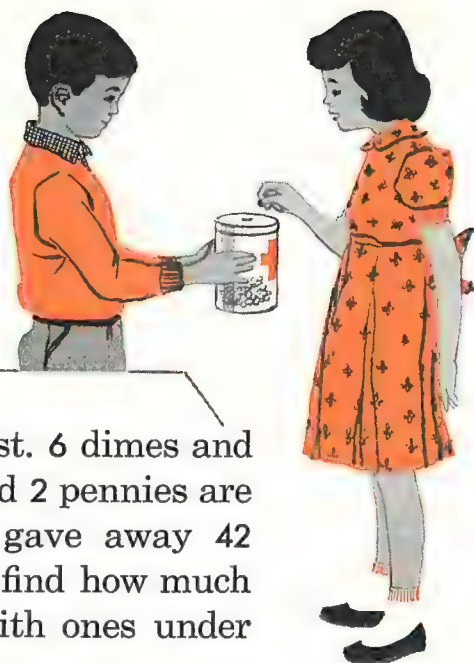
"That's almost right," said Miss Gay. "What did John leave out?"

"I know," said Joe. "He left out the cent signs. Jane had 25 cents left. You write it like this."

1. Tom paid 45¢ for his knife. Jack paid 32¢ for his. How much more did Tom pay than Jack?
2. Betty had 57¢. She spent 25¢ to buy a present for a friend. How much money did she have left?

Copy and subtract. Write ¢ after each answer.

- |    |   |   |   |   |   |   |   |   |
|----|---|---|---|---|---|---|---|---|
| 3. | $\begin{array}{r} 25¢ \\ 11¢ \\ \hline \end{array}$ | $\begin{array}{r} 35¢ \\ 23¢ \\ \hline \end{array}$ | $\begin{array}{r} 89¢ \\ 26¢ \\ \hline \end{array}$ | $\begin{array}{r} 64¢ \\ 41¢ \\ \hline \end{array}$ | $\begin{array}{r} 75¢ \\ 14¢ \\ \hline \end{array}$ | $\begin{array}{r} 59¢ \\ 37¢ \\ \hline \end{array}$ | $\begin{array}{r} 86¢ \\ 72¢ \\ \hline \end{array}$ | $\begin{array}{r} 49¢ \\ 19¢ \\ \hline \end{array}$ |
|    | $\begin{array}{r} 23¢ \\ 13¢ \\ \hline \end{array}$ | $\begin{array}{r} 37¢ \\ 15¢ \\ \hline \end{array}$ | $\begin{array}{r} 74¢ \\ 10¢ \\ \hline \end{array}$ | $\begin{array}{r} 98¢ \\ 24¢ \\ \hline \end{array}$ | $\begin{array}{r} 42¢ \\ 31¢ \\ \hline \end{array}$ | $\begin{array}{r} 74¢ \\ 52¢ \\ \hline \end{array}$ | $\begin{array}{r} 79¢ \\ 58¢ \\ \hline \end{array}$ | $\begin{array}{r} 89¢ \\ 65¢ \\ \hline \end{array}$ |



$$\begin{array}{r} 67 \\ -42 \\ \hline 25 \end{array}$$

$$\begin{array}{r} 67¢ \\ -42¢ \\ \hline 25¢ \end{array}$$

## Adding No Ones

$$\begin{array}{r} 37 \\ +20 \\ \hline 57 \end{array}$$

Add 20 to 37. First add the ones. In 20, the zero in ones place means no ones. If you add no ones to 7 ones, how many ones will you have?  $7 + 0 = \underline{\quad ? \quad}$  What figure is put in ones place in the answer?

Add the tens.  $3 + 2 = \underline{\quad ? \quad}$  What figure is put in tens place in the answer? Read the answer.

$$\begin{array}{r} 30 \\ +52 \\ \hline 82 \end{array}$$

1. Study the example done at the side. Why is 2 put in ones place in the answer? Why is 8 put in tens place in the answer? Read the answer.

Copy these examples and add.

$$\begin{array}{r} 2. \quad \begin{array}{r} 62 \\ 20 \\ \hline \end{array} \quad \begin{array}{r} 78 \\ 10 \\ \hline \end{array} \quad \begin{array}{r} 55 \\ 30 \\ \hline \end{array} \quad \begin{array}{r} 19 \\ 60 \\ \hline \end{array} \quad \begin{array}{r} 22 \\ 40 \\ \hline \end{array} \quad \begin{array}{r} 34 \\ 50 \\ \hline \end{array} \quad \begin{array}{r} 18 \\ 60 \\ \hline \end{array} \end{array}$$

$$\begin{array}{r} 3. \quad \begin{array}{r} 40 \\ 37 \\ \hline \end{array} \quad \begin{array}{r} 20 \\ 73 \\ \hline \end{array} \quad \begin{array}{r} 50 \\ 35 \\ \hline \end{array} \quad \begin{array}{r} 10 \\ 84 \\ \hline \end{array} \quad \begin{array}{r} 60 \\ 21 \\ \hline \end{array} \quad \begin{array}{r} 30 \\ 40 \\ \hline \end{array} \quad \begin{array}{r} 70 \\ 14 \\ \hline \end{array} \end{array}$$

In each example write the numbers in columns and add. Keep the ones in line. Keep the tens in line.

- |              |           |           |           |
|--------------|-----------|-----------|-----------|
| 4. $40 + 47$ | $60 + 32$ | $77 + 20$ | $30 + 56$ |
| 5. $50 + 28$ | $36 + 20$ | $45 + 50$ | $48 + 40$ |
| 6. $39 + 60$ | $10 + 83$ | $23 + 60$ | $10 + 89$ |
| 7. $70 + 26$ | $38 + 50$ | $53 + 20$ | $50 + 37$ |

Solve this problem.

8. Alice spent 15 minutes on spelling and 20 minutes on reading. How much time in all did Alice spend on both subjects?



## Subtracting No Ones

Subtract 20 from 57. First subtract the ones. In 20, the zero in ones place means no ones. If you take no ones from 7 ones, how many ones will you have?  $7 - 0 = \underline{\quad ? \quad}$  What figure is put in ones place in the answer?

$$\begin{array}{r} 57 \\ -20 \\ \hline 37 \end{array}$$

Subtract the tens.  $5 - 2 = \underline{\quad ? \quad}$  What figure is put in tens place in the answer? Read the answer.

1. Study the example done at the side. Why is 2 put in ones place in the answer? Why is 5 put in tens place in the answer? Read the answer.

$$\begin{array}{r} 82 \\ -30 \\ \hline 52 \end{array}$$

Copy these examples and subtract.

$$\begin{array}{r} 57 \\ \hline 20 \end{array} \quad \begin{array}{r} 82 \\ \hline 60 \end{array} \quad \begin{array}{r} 69 \\ \hline 30 \end{array} \quad \begin{array}{r} 94 \\ \hline 50 \end{array} \quad \begin{array}{r} 34 \\ \hline 10 \end{array} \quad \begin{array}{r} 96 \\ \hline 40 \end{array} \quad \begin{array}{r} 84 \\ \hline 10 \end{array}$$

$$\begin{array}{r} 61 \\ \hline 50 \end{array} \quad \begin{array}{r} 98 \\ \hline 70 \end{array} \quad \begin{array}{r} 99 \\ \hline 80 \end{array} \quad \begin{array}{r} 76 \\ \hline 60 \end{array} \quad \begin{array}{r} 86 \\ \hline 70 \end{array} \quad \begin{array}{r} 95 \\ \hline 60 \end{array} \quad \begin{array}{r} 91 \\ \hline 80 \end{array}$$

In each example write the numbers in columns and subtract. Keep the ones in line. Keep the tens in line.

$$\begin{array}{llll} 4. & 87 - 40 & 92 - 60 & 97 - 20 & 25 - 10 \\ 5. & 78 - 50 & 56 - 20 & 95 - 50 & 86 - 50 \\ 6. & 99 - 60 & 93 - 10 & 83 - 60 & 90 - 40 \\ 7. & 96 - 70 & 88 - 55 & 78 - 20 & 73 - 30 \end{array}$$

Solve this problem.

8. Ted spent 25 minutes on reading and 10 minutes on spelling. How much less time did Ted spend on spelling than on reading?





### No Ones Left

$$\begin{array}{r} 43 \\ -23 \\ \hline 20 \end{array}$$

1. Subtract 23 from 43. Study the example. Say each missing number.

First subtract the ones.  $3 - 3 = \underline{\quad ? \quad}$  There are no ones left. Write  $\underline{\quad ? \quad}$  in ones place.

Then subtract the tens.  $4 - 2 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in tens place.

How many ones has the answer? How many tens? Is the zero needed in the ones place to show that the 2 means 2 tens? The answer is 20.

Copy and subtract.

2.  $\begin{array}{r} 98 \\ 48 \end{array}$     $\begin{array}{r} 49 \\ 29 \end{array}$     $\begin{array}{r} 82 \\ 32 \end{array}$     $\begin{array}{r} 63 \\ 13 \end{array}$     $\begin{array}{r} 54 \\ 24 \end{array}$     $\begin{array}{r} 72 \\ 32 \end{array}$     $\begin{array}{r} 24 \\ 14 \end{array}$     $\begin{array}{r} 73 \\ 23 \end{array}$

### No Tens Left

$$\begin{array}{r} 47 \\ -43 \\ \hline 4 \end{array}$$

1. Subtract 43 from 47. Study the example. Say each missing number.

First subtract the ones.  $7 - 3 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in ones place.

Then subtract the tens.  $4 - 4 = \underline{\quad ? \quad}$  How many ones has the answer? How many tens?

Is the zero needed in the tens place to show that the 4 means 4 ones? The answer is 4.

Copy and subtract.

2.  $\begin{array}{r} 15 \\ 13 \end{array}$     $\begin{array}{r} 27 \\ 21 \end{array}$     $\begin{array}{r} 39 \\ 32 \end{array}$     $\begin{array}{r} 48 \\ 44 \end{array}$     $\begin{array}{r} 56 \\ 52 \end{array}$     $\begin{array}{r} 64 \\ 60 \end{array}$     $\begin{array}{r} 73 \\ 71 \end{array}$     $\begin{array}{r} 98 \\ 90 \end{array}$

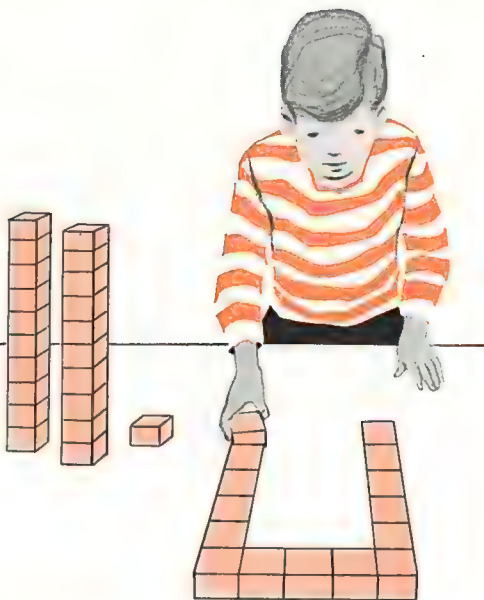
Zero is written in an answer only when it is needed to make the answer clear.

## Checking the Answer in Subtraction

Ted had 36 blocks. He took 15 blocks for a garage. How many blocks did he have left?

Here is a picture of Ted's garage and of the blocks left.

Ted said, "I took 15 blocks for my garage. I have 21 blocks left. If I put the blocks together again I should have the number I started with." Did he?



$$\begin{array}{r} 36 \\ -15 \\ \hline 21 \end{array}$$

$$\begin{array}{r} 15 \\ +21 \\ \hline 36 \end{array}$$

To check subtraction we add the number left to the number taken away.

"I know another way to check subtraction," said Dick. "Subtract the answer from the number you started with. Then you should get the number you took away. That's because subtraction means taking away one part of a number to find the other part."

"We can check that example, too," said Alice, "by adding the number left to the number taken away."

"Those additions and subtractions look like a number family," said Joe.

Can you see why they look like a number family?

Copy these examples. Subtract. Check by adding.

- |            |            |            |            |            |            |            |
|------------|------------|------------|------------|------------|------------|------------|
| 38         | 54         | 79         | 43         | 67         | 85         | 96         |
| <u>-14</u> | <u>-21</u> | <u>-34</u> | <u>-21</u> | <u>-42</u> | <u>-54</u> | <u>-72</u> |

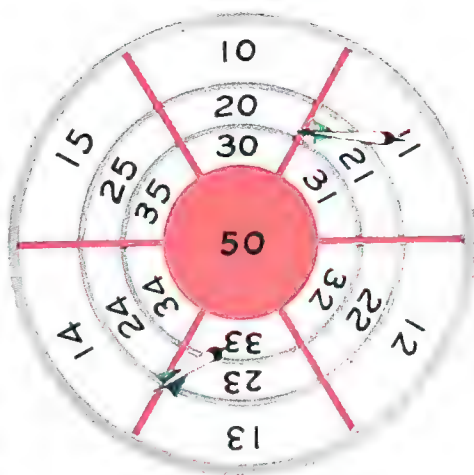
$$\begin{array}{r} 36 \\ -21 \\ \hline 15 \end{array}$$

$$\begin{array}{r} 21 \\ +15 \\ \hline 36 \end{array}$$

## The Game of Spider

COLUMN ADDITION OF TWO-PLACE NUMBERS

The girls played a game called *Spider*. Each girl had three turns.



1. Ellen threw the darts. She made 11 points the first time, 33 the second time, and 13 the third time. What was her score?

$$\begin{array}{r} 11 \\ 33 \\ 13 \\ \hline 57 \end{array}$$

Study the example. Say each missing number.

First add the ones. Add 1 and 3. Think 4. Add 4 and 3. Write ? in ones place.

Then add the tens. Add 1 and 3. Think 4. Add 4 and 1. Write ? in tens place.

Ellen's score was ?. Check by adding up.

2. These are the points the other girls made. Find each girl's score. Add down. Check by adding up.

Ann	Jane	Ruth	Judy	Sue	Mary	Joan	Kay	Alice
15	21	12	33	12	25	12	15	21
21	23	11	21	31	33	33	21	32
<u>31</u>	<u>13</u>	<u>31</u>	<u>23</u>	<u>21</u>	<u>21</u>	<u>14</u>	<u>21</u>	<u>13</u>

3. Two girls made the same score. What is the score?
4. The one who makes the highest score wins the game. Who won the game of *Spider*?

Copy and add. Add down. Check by adding up.

5. 

12	20	10	20	10	15	20	30	33
10	23	45	39	30	50	40	10	25
<u>34</u>	<u>40</u>	<u>11</u>	<u>10</u>	<u>45</u>	<u>32</u>	<u>10</u>	<u>35</u>	<u>10</u>

## Collecting Treasures

COLUMN ADDITION OF ONE- AND TWO-PLACE NUMBERS

1. Bob, Ruth, and Sue have collections of shells. Bob has 31 shells, Ruth has 6, and Sue has 42. How many shells do they have all together?

Study the example. Say each missing number.

First add the ones. Add 1 and 6. Think 7. Add 7 and 2. Write   ?.

Then add the tens. Add 3 and 4. Write   ?. All together the children have   ? shells.

Check the answer by adding up.

$$\begin{array}{r} 31 \\ 6 \\ 42 \\ \hline 79 \end{array}$$

2. Study the example at the right. Is the figure in the ones place in the answer correct? Only one figure, 4, is in the tens column. Write 4 in the tens place. The answer is   ?. Check by adding up.

Copy these examples. Keep the ones in line. Keep the tens in line. Add down. Check by adding up.

$$\begin{array}{r} 2 \\ 3 \\ 40 \\ \hline 45 \end{array}$$

3.	$\begin{array}{r} 51 \\ 3 \\ \hline 14 \end{array}$	$\begin{array}{r} 60 \\ 3 \\ \hline 25 \end{array}$	$\begin{array}{r} 7 \\ 11 \\ \hline 41 \end{array}$	$\begin{array}{r} 42 \\ 20 \\ \hline 2 \end{array}$	$\begin{array}{r} 33 \\ 4 \\ \hline 2 \end{array}$	$\begin{array}{r} 8 \\ 1 \\ \hline 20 \end{array}$
----	---	---	---	---	--	--

Solve these problems.

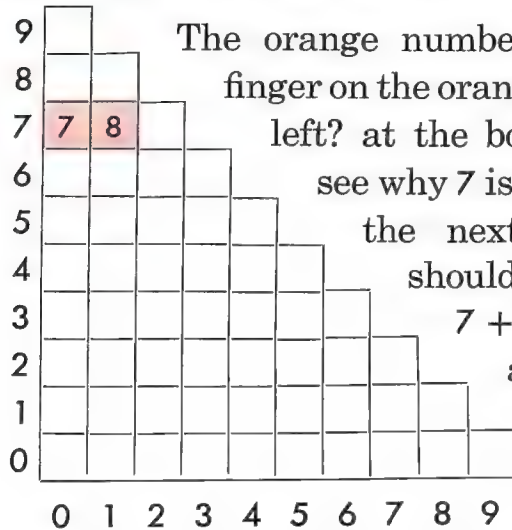
4. Ann collects pine cones. She has 11 cones from the red pine, 12 from the yellow pine, and 4 from the white pine. How many cones does she have in all?
5. Tom collects coins. He has 20 coins from England, 5 from Italy, and 4 from Spain. How many coins does he have in all?





## How to Make an Addition Chart

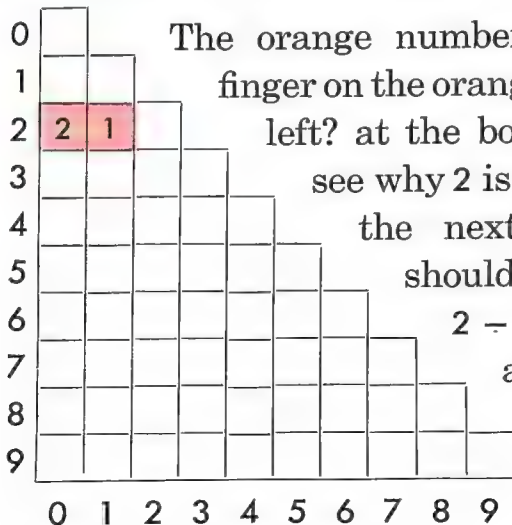
Copy the chart shown below. Copy the numbers at the left and at the bottom.



The orange numbers are answers. Put your finger on the orange 7. What number is at the left? at the bottom?  $7 + 0 = ?$  Do you see why 7 is the right answer? Why is 8 the next answer? What number should go in the last square?  $7 + 2 = ?$  Now put the right answers in all of the other squares on your chart.

## How to Make a Subtraction Chart

Copy the chart shown below. Copy the numbers at the left and at the bottom.



The orange numbers are answers. Put your finger on the orange 2. What number is at the left? at the bottom?  $2 - 0 = ?$  Do you see why 2 is the right answer? Why is 1 the next answer? What number should go in the last square?  $2 - 2 = ?$  Now put the right answers in all of the other squares on your chart.

# Practice to Remember

Copy each example and write the answer.

$$\begin{array}{r} 1. \quad \begin{array}{cccccccccc} 6 & 4 & 2 & 6 & 5 & 4 & 2 & 1 & 3 & 2 \\ +0 & +3 & +4 & +2 & +5 & +6 & +2 & +5 & +7 & +8 \end{array} \end{array}$$

$$\begin{array}{r} 2. \quad \begin{array}{cccccccccc} 5 & 8 & 6 & 6 & 10 & 10 & 4 & 10 & 6 & 10 \\ -1 & -3 & -0 & -4 & -6 & -7 & -2 & -5 & -5 & -8 \end{array} \end{array}$$

$$\begin{array}{r} 3. \quad \begin{array}{cccccccc} 60 & 30 & 40 & 20 & 10 & 20 & 10 & 30 \\ +10 & +50 & +20 & +60 & +80 & +50 & +40 & +40 \end{array} \end{array}$$

$$\begin{array}{r} 4. \quad \begin{array}{cccccccc} 80 & 90 & 50 & 60 & 70 & 70 & 80 & 70 \\ -50 & -80 & -40 & -20 & -10 & -40 & -60 & -50 \end{array} \end{array}$$

$$\begin{array}{r} 5. \quad \begin{array}{cccccccc} 35 & 53 & 14 & 26 & 51 & 11 & 77 & 40 \\ +12 & +12 & +15 & +13 & +46 & +23 & +10 & +35 \end{array} \end{array}$$

$$\begin{array}{r} 6. \quad \begin{array}{cccccccc} 39 & 34 & 75 & 48 & 29 & 87 & 65 & 97 \\ -13 & -23 & -35 & -12 & -12 & -10 & -12 & -66 \end{array} \end{array}$$

Copy and subtract. Check by adding.

$$\begin{array}{r} 7. \quad \begin{array}{cccccccc} 89 & 76 & 95 & 94 & 68 & 59 & 83 & 50 \\ 74 & 23 & 70 & 14 & 14 & 45 & 20 & 30 \end{array} \end{array}$$

Copy and add down. Check by adding up.

$$\begin{array}{r} 8. \quad \begin{array}{cccccccc} 20 & 31 & 15 & 30 & 30 & 11 & 20 & 12 \\ 33 & 31 & 40 & 18 & 27 & 23 & 10 & 54 \\ 10 & 22 & 34 & 20 & 22 & 51 & 49 & 13 \end{array} \end{array}$$

$$\begin{array}{r} 9. \quad \begin{array}{cccccccc} 40 & 2 & 7 & 40 & 21 & 9 & 1 & 2 \\ 42 & 36 & 1 & 4 & 70 & 10 & 7 & 40 \\ 5 & 61 & 50 & 50 & 6 & 70 & 61 & 7 \end{array} \end{array}$$

## To Add or Subtract, That Is the Question

Read each problem. Think each time, "Is this a 'put together' or a 'take away' problem?" Then add or subtract to solve the problem.

1. Three girls made some cookies. Kay made 12. Sue made 10. Ruth made 24. How many cookies in all did the three girls make?
2. Ruth made 24 cookies. Sue made 10. How many fewer cookies did Sue make than Ruth?
3. Ruth made 24 cookies. Kay made 12. How many more cookies did Ruth make than Kay?
4. Jim had 45¢. Joe had 42¢. How much money in all did they have?
5. Jim wanted a fishing plug that cost 75¢. He had only 45¢. How much more money does he need in order to buy the plug?
6. Joe had 52¢ in his piggy bank. He shook the bank and 12¢ fell out. How much money was left in the piggy bank?
7. Betty earned money helping the lady next door. One day she earned 20¢. The next day she earned 25¢. How much money did she earn in the two days?
8. Betty earned 20¢ the first day and 25¢ the second day. How much less did she earn on the first day than on the second day?
9. Bob spent 24¢ for milk and 44¢ for cream. How much more did the cream cost than the milk?

## Finding What You Need to Study Again

If you need to study something again, the page number at the right tells you where to find it.

1. Write in words: 40 20 70 10 90.
2. Write with figures: fifty, fifty-six, sixty-five, seventy-two, twenty-seven.
3. Copy in order from smallest to largest:

31      13      21      12      41      14      65      56

Copy each example and write the answer.

4.     $\begin{array}{r} 43 \\ +5 \\ \hline \end{array}$      $\begin{array}{r} 72 \\ +4 \\ \hline \end{array}$      $\begin{array}{r} 97 \\ +2 \\ \hline \end{array}$      $\begin{array}{r} 86 \\ +2 \\ \hline \end{array}$      $\begin{array}{r} 98 \\ -2 \\ \hline \end{array}$      $\begin{array}{r} 76 \\ -3 \\ \hline \end{array}$      $\begin{array}{r} 57 \\ -4 \\ \hline \end{array}$      $\begin{array}{r} 64 \\ -2 \\ \hline \end{array}$

5.     $\begin{array}{r} 20 \\ +10 \\ \hline \end{array}$      $\begin{array}{r} 30 \\ +20 \\ \hline \end{array}$      $\begin{array}{r} 30 \\ +30 \\ \hline \end{array}$      $\begin{array}{r} 10 \\ +60 \\ \hline \end{array}$      $\begin{array}{r} 60 \\ -30 \\ \hline \end{array}$      $\begin{array}{r} 50 \\ -20 \\ \hline \end{array}$      $\begin{array}{r} 70 \\ -60 \\ \hline \end{array}$      $\begin{array}{r} 30 \\ -10 \\ \hline \end{array}$

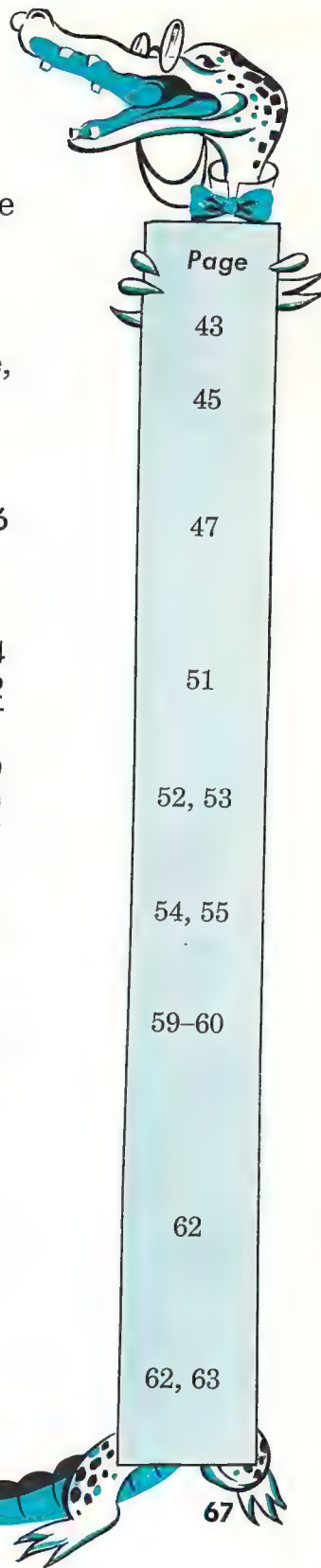
6.     $\begin{array}{r} 23 \\ +61 \\ \hline \end{array}$      $\begin{array}{r} 34 \\ +32 \\ \hline \end{array}$      $\begin{array}{r} 65 \\ +32 \\ \hline \end{array}$      $\begin{array}{r} 18 \\ +41 \\ \hline \end{array}$      $\begin{array}{r} 97 \\ -32 \\ \hline \end{array}$      $\begin{array}{r} 84 \\ -61 \\ \hline \end{array}$      $\begin{array}{r} 59 \\ -41 \\ \hline \end{array}$      $\begin{array}{r} 66 \\ -32 \\ \hline \end{array}$

7.     $\begin{array}{r} 54 \\ -20 \\ \hline \end{array}$      $\begin{array}{r} 79 \\ -30 \\ \hline \end{array}$      $\begin{array}{r} 89 \\ -29 \\ \hline \end{array}$      $\begin{array}{r} 58 \\ -48 \\ \hline \end{array}$      $\begin{array}{r} 67 \\ -62 \\ \hline \end{array}$      $\begin{array}{r} 59 \\ -54 \\ \hline \end{array}$      $\begin{array}{r} 97 \\ -96 \\ \hline \end{array}$      $\begin{array}{r} 47 \\ -43 \\ \hline \end{array}$

Copy each example. Add down and check.

8.     $\begin{array}{r} 12 \\ 13 \\ 14 \\ \hline \end{array}$      $\begin{array}{r} 23 \\ 21 \\ 12 \\ \hline \end{array}$      $\begin{array}{r} 13 \\ 22 \\ 52 \\ \hline \end{array}$      $\begin{array}{r} 24 \\ 43 \\ 31 \\ \hline \end{array}$      $\begin{array}{r} 51 \\ 16 \\ 20 \\ \hline \end{array}$      $\begin{array}{r} 24 \\ 50 \\ 24 \\ \hline \end{array}$      $\begin{array}{r} 10 \\ 55 \\ 13 \\ \hline \end{array}$      $\begin{array}{r} 21 \\ 64 \\ 10 \\ \hline \end{array}$

9.     $\begin{array}{r} 11 \\ 30 \\ 6 \\ \hline \end{array}$      $\begin{array}{r} 20 \\ 4 \\ 75 \\ \hline \end{array}$      $\begin{array}{r} 10 \\ 8 \\ 70 \\ \hline \end{array}$      $\begin{array}{r} 3 \\ 10 \\ 83 \\ \hline \end{array}$      $\begin{array}{r} 34 \\ 23 \\ 12 \\ \hline \end{array}$      $\begin{array}{r} 71 \\ 13 \\ 5 \\ \hline \end{array}$      $\begin{array}{r} 85 \\ 2 \\ 11 \\ \hline \end{array}$      $\begin{array}{r} 53 \\ 10 \\ 20 \\ \hline \end{array}$





## Finding Out What You Know



Blocks



### A. Word Meanings

1. Write the number of blocks shown in the row.
2. Copy the *column* of numbers shown in the box.
3. How many *figures* are in the number 15?
4. Say the following numbers from left to right: 7 6 5 4 3. Write the word that tells whether you are counting *forward* or *backward*.
5. Say the following numbers from left to right: 3 4 5 6 7. Write the word that tells whether you are counting *forward* or *backward*.

2
3
1 5 3 2

### B. Arithmetic Understandings

1. A quart has how many pints?
2. A pint has how many half pints?
3. A quart has how many half pints?
4. A group of coins is shown in each box. How many cents is each group worth?
5. Write just the tens figure of each of these numbers: 12 32 23 45
6. Write just the ones figure of each of these numbers: 15 20 32 23
7. Write the number that is 10 more than each of these numbers: 1 3 2 4
8. Write the number that is 10 less than each of these numbers: 15 12 16 18
9. Count by tens from 10 to 100. Write each number as you say it.



### C. Number Facts and Skills

Copy each example and write the answer.

1.  $\begin{array}{r} 20 \\ +70 \\ \hline \end{array}$   $\begin{array}{r} 40 \\ +40 \\ \hline \end{array}$   $\begin{array}{r} 50 \\ +20 \\ \hline \end{array}$   $\begin{array}{r} 10 \\ +50 \\ \hline \end{array}$   $\begin{array}{r} 32 \\ +57 \\ \hline \end{array}$   $\begin{array}{r} 42 \\ +31 \\ \hline \end{array}$   $\begin{array}{r} 36 \\ +32 \\ \hline \end{array}$   $\begin{array}{r} 12 \\ +72 \\ \hline \end{array}$
2.  $\begin{array}{r} 34 \\ -24 \\ \hline \end{array}$   $\begin{array}{r} 97 \\ -90 \\ \hline \end{array}$   $\begin{array}{r} 80 \\ -60 \\ \hline \end{array}$   $\begin{array}{r} 73 \\ -40 \\ \hline \end{array}$   $\begin{array}{r} 67 \\ -62 \\ \hline \end{array}$   $\begin{array}{r} 68 \\ -30 \\ \hline \end{array}$   $\begin{array}{r} 98 \\ -78 \\ \hline \end{array}$   $\begin{array}{r} 15 \\ -12 \\ \hline \end{array}$
3.  $\begin{array}{r} 1 \\ 4 \\ +4 \\ \hline \end{array}$   $\begin{array}{r} 3 \\ 0 \\ +7 \\ \hline \end{array}$   $\begin{array}{r} 3 \\ 2 \\ +5 \\ \hline \end{array}$   $\begin{array}{r} 3 \\ 4 \\ +0 \\ \hline \end{array}$   $\begin{array}{r} 6 \\ 1 \\ +3 \\ \hline \end{array}$   $\begin{array}{r} 0 \\ 0 \\ +8 \\ \hline \end{array}$   $\begin{array}{r} 4 \\ 2 \\ +4 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ 5 \\ +3 \\ \hline \end{array}$
4.  $\begin{array}{r} 16 \\ 31 \\ +12 \\ \hline \end{array}$   $\begin{array}{r} 23 \\ 31 \\ +10 \\ \hline \end{array}$   $\begin{array}{r} 16 \\ 10 \\ +43 \\ \hline \end{array}$   $\begin{array}{r} 17 \\ 21 \\ +61 \\ \hline \end{array}$   $\begin{array}{r} 80 \\ 1 \\ +6 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ 70 \\ +5 \\ \hline \end{array}$   $\begin{array}{r} 25 \\ 3 \\ +41 \\ \hline \end{array}$   $\begin{array}{r} 30 \\ 65 \\ +2 \\ \hline \end{array}$



### D. Problem Solving

Copy the number of each sentence. Then write just the word that is missing from the sentence. The word may be *add* or it may be *subtract*.

1. To find how much two groups make together, I \_\_\_\_\_.
2. To find how many in all three groups make, I \_\_\_\_\_.
3. To find how many are gone from a known group of things, I \_\_\_\_\_.
4. To take away part of a group, I \_\_\_\_\_.
5. To find the number needed to make one group match another, I \_\_\_\_\_.
6. To find how many fewer are in one group than in another, I \_\_\_\_\_.
7. To find how many more are in one group than in another, I \_\_\_\_\_.



### Heads and Tails

SUMS OF 11

11 comes from 10 and 1,  
But, now you've only just begun.



Study each picture as you read each line.

Heads up, 9, and tails up, 2,  
11 pennies, all for you.



Heads up, 8, and tails up, 3,  
11 pennies there will be.



Heads up, 7, and tails up, 4,  
11 pennies, not one more.



Heads up, 6, and tails up, 5,  
Make 11, as you're alive.



Heads up, 5, and tails up, 6,  
11 pennies you can fix.





# Addition and Subtraction



Heads up, 4, and tails up, 7,  
Pennies in the row, 11.



Heads up, 3, and tails up, 8,  
11 pennies sure as fate.



Heads up, 2, and tails up, 9,  
11 pennies in a line.



Heads up, 1, and tails up, 10,  
11 pennies once again.



Practice saying and writing these facts about 11.

10	1	9	2	8	3	7	4	6	5
<u>+1</u>	<u>+10</u>	<u>+2</u>	<u>+9</u>	<u>+3</u>	<u>+8</u>	<u>+4</u>	<u>+7</u>	<u>+5</u>	<u>+6</u>
11	11	11	11	11	11	11	11	11	11



## If You Can Add, You Can Subtract



- How many pennies are in the picture?
- Hold your cover card under 10 pennies at the left.

Count the rest of the pennies.

$$10 + 1 = \underline{\quad ? \quad}$$

Now cover 1 penny at the right.

$$11 - 1 = \underline{\quad ? \quad}$$

- Hold your cover card under 9 pennies at the left.

Count the rest of the pennies.

$$9 + 2 = \underline{\quad ? \quad}$$

Now cover 2 pennies at the right.

$$11 - 2 = \underline{\quad ? \quad}$$

- Hold your cover card under 8 pennies at the left.

Count the rest of the pennies.

$$8 + 3 = \underline{\quad ? \quad}$$

Now cover 3 pennies at the right.

$$11 - 3 = \underline{\quad ? \quad}$$

- Try using your cover card to find the answers to these examples.

$$\begin{array}{cccccccc} 7 + 4 & 6 + 5 & 5 + 6 & 4 + 7 & 3 + 8 & 9 + 2 & 1 + 10 \\ 11 - 4 & 11 - 5 & 11 - 6 & 11 - 7 & 11 - 8 & 11 - 2 & 11 - 10 \end{array}$$

- Practice saying and writing these facts about 11 until you know them well.

$$\begin{array}{r} 10 \\ +1 \\ \hline 11 \end{array} \quad \begin{array}{r} 1 \\ +10 \\ \hline 11 \end{array}$$

$$\begin{array}{r} 11 \\ -1 \\ \hline 10 \end{array} \quad \begin{array}{r} 11 \\ -10 \\ \hline 1 \end{array}$$

$$\begin{array}{r} 11 \\ -1 \\ \hline 10 \end{array} \quad \begin{array}{r} 11 \\ -10 \\ \hline 1 \end{array} \quad \begin{array}{r} 11 \\ -2 \\ \hline 9 \end{array} \quad \begin{array}{r} 11 \\ -9 \\ \hline 2 \end{array} \quad \begin{array}{r} 11 \\ -3 \\ \hline 8 \end{array} \quad \begin{array}{r} 11 \\ -8 \\ \hline 3 \end{array} \quad \begin{array}{r} 11 \\ -4 \\ \hline 7 \end{array} \quad \begin{array}{r} 11 \\ -7 \\ \hline 4 \end{array} \quad \begin{array}{r} 11 \\ -5 \\ \hline 6 \end{array} \quad \begin{array}{r} 11 \\ -6 \\ \hline 5 \end{array}$$

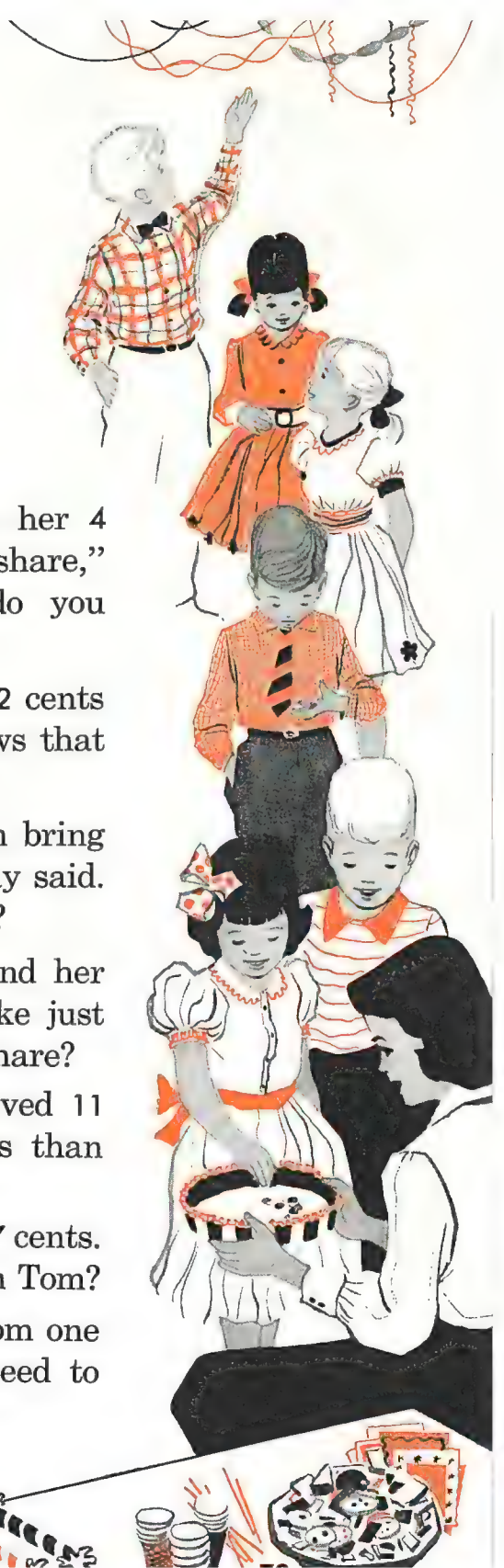
- Why are the four examples in the box a number family? Write the 3 other facts that belong with:  
 $9 + 2 = 11$ ;  $11 - 8 = 3$ ;  $7 + 4 = 11$ ;  $11 - 6 = 5$ .

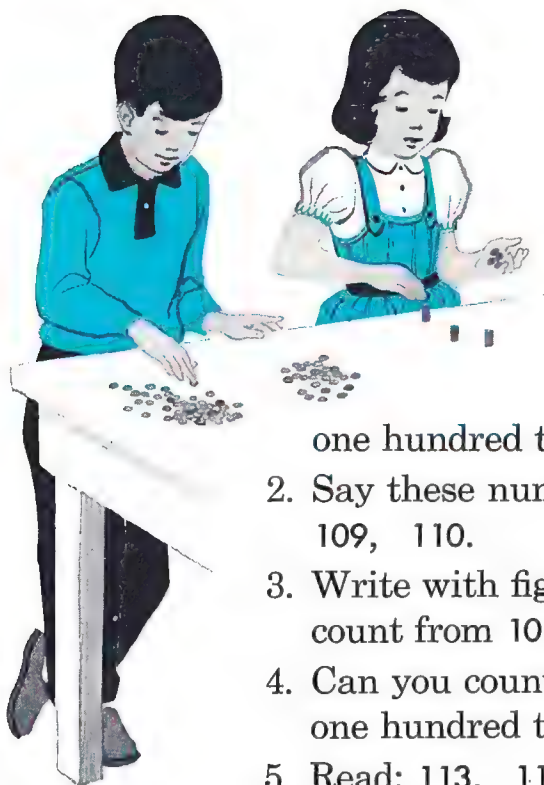
## Pennies for a Party

The third grade planned a party. The party was to cost each child 11 cents.

Solve each problem about the party.

1. Dick had 5 cents. How much more money did he need to pay his share of 11 cents?
2. Ruth had 7 cents. Her father gave her 4 cents. "Now I have enough to pay my share," said Ruth. Was she right? How do you know?
3. Ted had 9 cents in his toy bank and 2 cents in his pocket. What number fact shows that Ted could pay his share of the party?
4. Kay gave her teacher 3 cents. "I can bring the rest of the 11 cents tomorrow," Kay said. How much should she bring tomorrow?
5. Sue's older sister gave her 5 cents and her brother gave her 6 cents. Did this make just enough or more than enough for her share?
6. Ann had saved 8 cents. Alice had saved 11 cents. Ann had saved how much less than Alice?
7. Bill earned 11 cents. Tom earned only 7 cents. Bill earned how many cents more than Tom?
8. Jack had money in two toy banks. From one he got 6 cents. How much did he need to shake out of the other bank?





## Counting Over a Hundred

Sam counted the pennies the children brought to school. There were more than one hundred pennies.

1. Can you count over 100? To begin, say: one hundred one, one hundred two. Write: 101, 102.
2. Say these numbers: 103, 104, 105, 106, 107, 108, 109, 110.
3. Write with figures all the numbers you say when you count from 101 to 110.
4. Can you count beyond 110? Say: one hundred eleven, one hundred twelve. Write: 111, 112.
5. Read: 113, 114, 115, 116, 117, 118, 119, 120.
6. The next numbers are one hundred twenty-one, one hundred twenty-two. Write them with figures.
7. Read: 123, 124, 125, 126, 127, 128, 129, 130.

101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120
121									
131									
141									
151									
161									
171									
181									
191									200

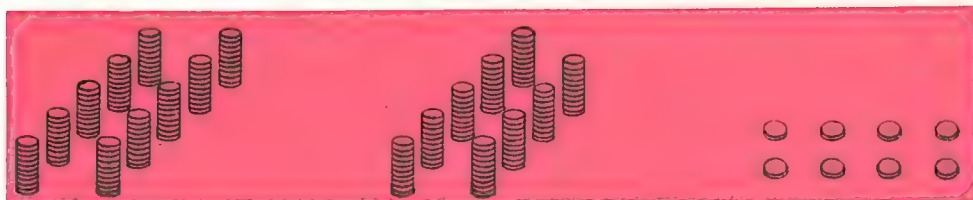
8. Sam counted 198 pennies. Can you count to 198? This chart will help you. Copy and finish the chart. The last number is two hundred.
9. Write with figures: one hundred one, one hundred ten, one hundred seventy-five.
10. Count by 10's from 100 to 200. The figures in the last column on your chart will help you.
11. Make a chart of the numbers from 201 to 300.

## Counting and Changing Money

### MEANING OF THREE-PLACE NUMBERS

Betty showed a different way to count the pennies.

First she made stacks of 10 pennies each. Then she put the pennies in three groups as shown below. Study the picture. How many stacks did she make?



First Group

Second Group

Third Group

First group: ten, twenty, thirty, forty, fifty, sixty, seventy, eighty, ninety, *one hundred* pennies.

Second group: ten, twenty, thirty, forty, fifty, sixty, seventy, eighty, *ninety* pennies.

Third group: one, two, three, four, five, six, seven, *eight* pennies.

How many pennies were there in all?

1. Betty said, "Let's take the pennies to the bank. We can get a dollar for the first group."

Was Betty right? Why?

2. How many dimes could the children get for the second group of pennies? Why?
3. The children went to the bank, with   ?   pennies. They brought back   ?   dollar,   ?   dimes,   ?   pennies.
4. 196 pennies make   ?   dollar,   ?   dimes,   ?   pennies.
5. 128 pennies make   ?   dollar,   ?   dimes,   ?   pennies.
6. 145 pennies make   ?   dollar,   ?   dimes,   ?   pennies.
7. 163 pennies make   ?   dollar,   ?   dimes,   ?   pennies.





## Counting with Play Money

The children in the third grade used play money to help them learn the meaning of numbers.

1. Count the play dollars shown at the left. How many are there?
2. Each dollar is worth how many cents in play money? How many dimes?
3. Count the play money in cents. Think of each dollar as 100 cents. You will be counting by hundreds. Point to each dollar as you count.

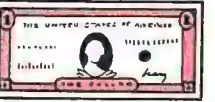
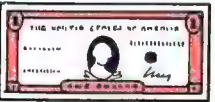
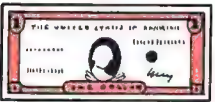
one hundred	100	six hundred	600
two hundred	200	seven hundred	700
three hundred	300	eight hundred	800
four hundred	400	nine hundred	900
five hundred	500	ten hundred	1000

Ten hundreds make one *thousand*.

4. Count the play money in dimes. Think of each dollar as 10 dimes. Count ten, twenty, and so on.
5. Ten dollars are worth   ?   dimes.
6. One dollar is worth 10 dimes, or   ?   pennies.
7. 100 means   ?   hundred, or   ?   tens, or   ?   ones.

Copy each sentence and write the missing number.

8. 200 =   ?   tens. 200 =   ?   hundreds.
9. 700 =   ?   tens. 700 =   ?   hundreds.
10. 500 means   ?   hundreds, or   ?   tens, or   ?   ones.
11. 900 means   ?   hundreds, or   ?   tens, or   ?   ones.
12. 1000 means   ?   thousand, or   ?   hundreds, or   ?   tens, or   ?   ones.



## Practice to Remember

Copy each example and write the answer.

1.  $\begin{array}{r} 1 \\ +6 \\ \hline \end{array}$   $\begin{array}{r} 4 \\ +2 \\ \hline \end{array}$   $\begin{array}{r} 6 \\ +1 \\ \hline \end{array}$   $\begin{array}{r} 7 \\ +0 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ +6 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ +5 \\ \hline \end{array}$   $\begin{array}{r} 3 \\ +4 \\ \hline \end{array}$   $\begin{array}{r} 0 \\ +5 \\ \hline \end{array}$   $\begin{array}{r} 7 \\ +1 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ +7 \\ \hline \end{array}$
2.  $\begin{array}{r} 1 \\ +8 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ +2 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ +4 \\ \hline \end{array}$   $\begin{array}{r} 3 \\ +1 \\ \hline \end{array}$   $\begin{array}{r} 4 \\ +0 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ +4 \\ \hline \end{array}$   $\begin{array}{r} 0 \\ +9 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ +1 \\ \hline \end{array}$   $\begin{array}{r} 4 \\ +1 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ +3 \\ \hline \end{array}$
3.  $\begin{array}{r} 7 \\ -6 \\ \hline \end{array}$   $\begin{array}{r} 6 \\ -2 \\ \hline \end{array}$   $\begin{array}{r} 7 \\ -1 \\ \hline \end{array}$   $\begin{array}{r} 7 \\ -0 \\ \hline \end{array}$   $\begin{array}{r} 8 \\ -2 \\ \hline \end{array}$   $\begin{array}{r} 6 \\ -5 \\ \hline \end{array}$   $\begin{array}{r} 7 \\ -3 \\ \hline \end{array}$   $\begin{array}{r} 5 \\ -5 \\ \hline \end{array}$   $\begin{array}{r} 8 \\ -1 \\ \hline \end{array}$   $\begin{array}{r} 9 \\ -2 \\ \hline \end{array}$
4.  $\begin{array}{r} 9 \\ -8 \\ \hline \end{array}$   $\begin{array}{r} 4 \\ -2 \\ \hline \end{array}$   $\begin{array}{r} 5 \\ -4 \\ \hline \end{array}$   $\begin{array}{r} 4 \\ -1 \\ \hline \end{array}$   $\begin{array}{r} 4 \\ -0 \\ \hline \end{array}$   $\begin{array}{r} 6 \\ -4 \\ \hline \end{array}$   $\begin{array}{r} 9 \\ -9 \\ \hline \end{array}$   $\begin{array}{r} 3 \\ -1 \\ \hline \end{array}$   $\begin{array}{r} 5 \\ -1 \\ \hline \end{array}$   $\begin{array}{r} 4 \\ -3 \\ \hline \end{array}$

Make "I Will Help You" cards for any facts you find hard to remember. Be sure the answer on the back of each card is correct. Practice with the cards until you feel sure of the answers.

Copy each example and write the answer.

5.  $\begin{array}{r} 23 \\ +34 \\ \hline \end{array}$   $\begin{array}{r} 14 \\ +62 \\ \hline \end{array}$   $\begin{array}{r} 57 \\ +32 \\ \hline \end{array}$   $\begin{array}{r} 68 \\ +21 \\ \hline \end{array}$   $\begin{array}{r} 19 \\ +50 \\ \hline \end{array}$   $\begin{array}{r} 52¢ \\ +21¢ \\ \hline \end{array}$   $\begin{array}{r} 73¢ \\ +12¢ \\ \hline \end{array}$   $\begin{array}{r} 46¢ \\ +13¢ \\ \hline \end{array}$
6.  $\begin{array}{r} 89 \\ -21 \\ \hline \end{array}$   $\begin{array}{r} 59 \\ -13 \\ \hline \end{array}$   $\begin{array}{r} 69 \\ -50 \\ \hline \end{array}$   $\begin{array}{r} 57 \\ -34 \\ \hline \end{array}$   $\begin{array}{r} 85 \\ -12 \\ \hline \end{array}$   $\begin{array}{r} 76¢ \\ -62¢ \\ \hline \end{array}$   $\begin{array}{r} 73¢ \\ -21¢ \\ \hline \end{array}$   $\begin{array}{r} 89¢ \\ -32¢ \\ \hline \end{array}$

Copy each example and add down. Check by adding up.

7.  $\begin{array}{r} 0 \\ 1 \\ 8 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ 4 \\ 4 \\ \hline \end{array}$   $\begin{array}{r} 3 \\ 2 \\ 1 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ 4 \\ 2 \\ \hline \end{array}$   $\begin{array}{r} 6 \\ 1 \\ 3 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ 7 \\ 2 \\ \hline \end{array}$   $\begin{array}{r} 5 \\ 4 \\ 1 \\ \hline \end{array}$   $\begin{array}{r} 3 \\ 3 \\ 3 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ 3 \\ 4 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ 1 \\ 6 \\ \hline \end{array}$
8.  $\begin{array}{r} 12 \\ 10 \\ 72 \\ \hline \end{array}$   $\begin{array}{r} 10 \\ 27 \\ 31 \\ \hline \end{array}$   $\begin{array}{r} 53 \\ 10 \\ 25 \\ \hline \end{array}$   $\begin{array}{r} 10 \\ 36 \\ 43 \\ \hline \end{array}$   $\begin{array}{r} 18 \\ 41 \\ 30 \\ \hline \end{array}$   $\begin{array}{r} 30 \\ 14 \\ 21 \\ \hline \end{array}$   $\begin{array}{r} 21 \\ 22 \\ 34 \\ \hline \end{array}$   $\begin{array}{r} 21 \\ 50 \\ 27 \\ \hline \end{array}$



## Just Suppose!

Read each problem. Say the missing word in the sentence at the end. The word should be *add*, or *subtract*.

1. Suppose you know how much money Ted has and how much money Tom has. How would you find how much both have together? I would \_\_\_\_\_.
2. Suppose you know how much money Ted has and how much money Tom has. How would you find how much more one boy has than the other has? I would \_\_\_\_\_.
3. Suppose Jim knew how many marbles he owned. Suppose he lost some. How could he find out from the marbles left how many he lost? He could count the marbles left and \_\_\_\_\_.
4. Suppose you want to buy a present for a friend. Suppose the present costs a little more than the money you have. How would you find how much more money you need? I would \_\_\_\_\_.
5. Suppose you know how many bottles of milk the children used on Monday, on Tuesday, and on Wednesday. How would you find the number of bottles of milk used in the three days? I would \_\_\_\_\_.
6. Suppose you knew how many peanuts were on a plate at a picnic. Suppose, when you were not looking, a chipmunk took some of the peanuts. How could you find out how many peanuts the chipmunk took? I would count the peanuts left and \_\_\_\_\_.



## What Time Will It Be?

COUNTING FORWARD

1. Look at this clock. What time is shown? What time will it be 5 hours later? Count forward five hours, pointing to each hour as you count. Point to 11 first, as you say, "One."



Use the clock in the picture or make a play clock to help you solve these problems.

2. Patsy is going to play at her friend's house for 3 hours. She gets there at 9 o'clock. What time should she leave? Count forward 3 hours. At what number on the clock will you begin?
3. Grandma left home at 1 o'clock. She is coming here for a visit. It is a 2-hour trip. What time should she get here?
4. Dad left the house at 8 o'clock. He said he would be gone 9 hours. What time should he be home?
5. One hour after 11 o'clock the time will be   ?  .
6. One hour after 12 o'clock the time will be   ?  .
7. Three hours after 11 o'clock the time will be   ?  .
8. Seven hours after 6 o'clock the time will be   ?  .
9. Ten hours after 12 o'clock the time will be   ?  .



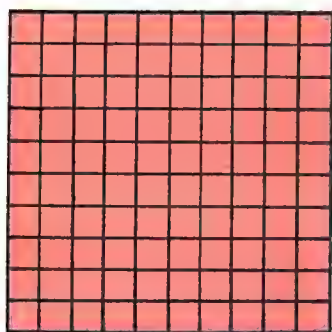
A day is 24 hours long. Part of the day it is light and part of the day it is dark. The dark part of the day is called night.

10. How many times does the minute hand go all the way around the clock in 1 day?
11. How many times does the hour hand go all the way around the clock in 24 hours?

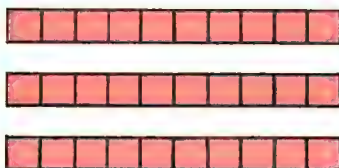


## Understanding Three-Place Numbers

1. Ted's father had some seals. They were in sheets of 100. The largest drawing below shows 1 sheet. Each row has how many seals? How many rows of 10 seals has the whole sheet?
2. Ted wanted to use some seals. His father gave him 1 whole sheet, and 3 rows, and 4 single seals. How many seals is that? Study the drawing below.



1 sheet  
1 hundred



3 rows  
3 tens



4 single ones  
4 ones

The number 134 has three figures: a hundreds figure, 1; a tens figure, 3; and a ones figure, 4.

The 1 in 134 means 1 hundred or 100

The 3 in 134 means 3 tens or 30

The 4 in 134 means 4 ones or 4

All together they make 134

When you say one hundred thirty-four, you tell what each figure means in the number 134.

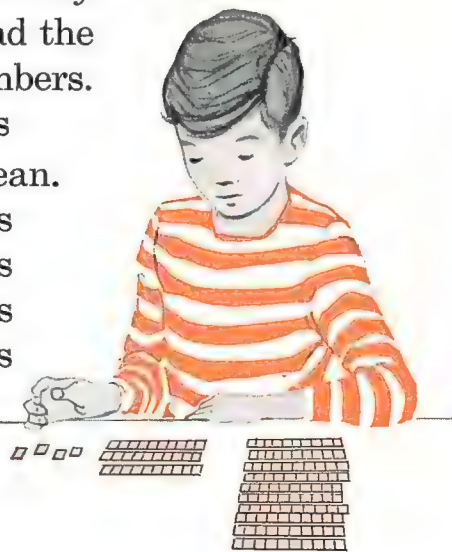
Hundreds	Tens	Ones
3	7	6
5	9	6
8	4	2

Number Chart

3. In each number shown in the chart, which figure is in the hundreds place? the tens place? the ones place?
4. 376 means   ? hundreds   ? tens   ? ones  
596 means   ? hundreds   ? tens   ? ones  
842 means   ? hundreds   ? tens   ? ones

Tell the missing numbers. See how number 5 is done.

5. In 359: the 3 means 300    6. In 678: the 6 means ?  
the 5 means 50    the 7 means ?  
the 9 means 9    the 8 means ?
7. In 236: the 2 means ?    8. In 567: the 5 means ?  
the 3 means ?    the 6 means ?  
the 6 means ?    the 7 means ?
9. Read these numbers: 378, 594, 841, 758.
10. Write these three-place numbers with figures.  
three hundred fifty-four    three hundred forty-five  
five hundred thirty    five hundred three
11. What number comes just after each of these numbers?  
9    99    999    91    990
12. What is the largest three-place number you can write?  
What is the smallest three-place number?
13. What is the largest two-place number you can write?  
What is the smallest two-place number?
14. Ted tore his sheet of seals into 10 rows. How many other rows did he have? How many tens are in 13 rows? How many single seals did Ted have? How many tens and how many ones are shown by 13 rows of seals and 4 single seals? Read the next sentence and say the missing numbers.  
134 can mean ? tens and ? ones
15. Tell what each of these numbers can mean.  
168 can mean ? tens and ? ones  
376 can mean ? tens and ? ones  
596 can mean ? tens and ? ones  
842 can mean ? tens and ? ones





## Window Shopping

READING AND WRITING DOLLARS AND CENTS

Dick and Ruth were window shopping.

Dick said, "The skates cost 4 dollars and 50 cents. I could not buy them. I could buy the knife."

Ruth said, "The big doll is 6 dollars and 35 cents. I could not buy it, but I could buy the small doll."

Look at the numbers in the box. The first two show dollars and cents. The other shows cents.

The sign \$ is put at the left of the number. It is read "dollar" or "dollars."

A *decimal point* is put between the number that shows dollars and the number that shows cents.

The number to the *left* of the decimal point shows dollars. The number to the *right* of the decimal point shows cents. The decimal point is read "and." If there is a zero or no number at the left of the decimal point, the number is read "cents." The number that shows cents *always* has *two* figures when written with a dollar sign and a decimal point.

\$1.75

\$4.50

\$.75





Study the ways shown to read dollars and cents.

- |  |  |
|--|--|
| 1. $\frac{\$3.92}{3 \text{ dollars and } 92 \text{ cents}}$  | 2. $\frac{\$5.60}{5 \text{ dollars and } 60 \text{ cents}}$                |
| 3. $\frac{\$15.06}{15 \text{ dollars and } 6 \text{ cents}}$ | 4. $\frac{\$9.00}{9 \text{ dollars}}$ 5. $\frac{\$0.87}{87 \text{ cents}}$ |

The zeros are not read, but they help you to read the other figures correctly and to see what they mean.

6. Read the price of the knife; of the smallest doll.
7. Read the price of the football; of the dump truck.
8. Copy the price of each thing in the picture. Write each price in words.

Read the following numbers in dollars and cents.

- |            |         |        |        |
|------------|---------|--------|--------|
| 9. \$1.25  | \$19.80 | \$7.10 | \$2.05 |
| 10. \$8.11 | \$21.01 | \$4.16 | \$6.00 |

Write the following three numbers with figures. Put the dollar sign and the decimal point in each.

11. Six dollars and thirty-two cents; one dollar and seventeen cents; three dollars and twenty cents.
12. Fifteen cents can be written this way: \$.15. Use this way to write 25 cents; 57 cents; 50 cents.
13. Nine cents can be written this way: \$.09. Use this way to write 3 cents; 5 cents; 8 cents; 1 cent.
14. Five dollars can be written this way: \$5.00. Use this way to write 8 dollars; 2 dollars; 10 dollars.







Quarter



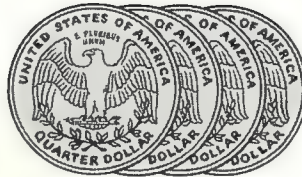
Half Dollar



Dollar

### Quarters, Half Dollars, and Dollars.

1. Read the names of the coins at the left.
2. Jack had a quarter. Jane had 25 pennies. Jane said, "My money is worth just as much as yours." Was she right? A quarter is worth   ?   cents.
3. Bill had 5 nickels. He said to Jack, "My money is worth as much as yours." Was he right? Count by fives to find out if he was right.
4. Jack bought a game that cost 19¢. He gave the storekeeper the quarter. The man gave Jack the game, saying "19¢ for the game." Then he gave him a penny, saying "20," and a nickel, saying "25." How much change did Jack get? Why did the storekeeper begin with 19 and end with 25?
5. How much change would Jack get from a quarter and what would the storekeeper say, if the game cost 15¢? 21¢? 24¢? 13¢? 17¢?



6. Ellen had two half dollars. Joe had one silver dollar. Joe said, "I have as much money as you have." Was Joe right? One dollar is worth   ?   half dollars.

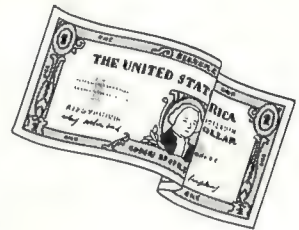
7. Sam had 4 quarters. Sam said, "My money is worth one dollar too." Was Sam right?

Kay had a paper dollar, which is called a *dollar bill*. A paper dollar and a silver dollar are worth the same.

8. For her dollar bill Kay could get how many half dollars? quarters? dimes? pennies?

9. For a quarter you could get how many pennies?

10. For a half dollar you could get how many dimes? nickels? pennies?



## A Family Game

Joan said, "Let's play a game. I will choose a fact about 11. You write the other three facts that belong in the same family. Then you choose a fact."

Joan chose:	$\begin{array}{r} 9 \\ +2 \\ \hline 11 \end{array}$	Judy wrote:	$\begin{array}{r} 2 \\ +9 \\ \hline 11 \end{array}$	$\begin{array}{r} 11 \\ -2 \\ \hline 9 \end{array}$	$\begin{array}{r} 11 \\ -9 \\ \hline 2 \end{array}$
-------------	---	-------------	---	---	---

Copy the fact below that each girl chose. Write the other three facts that go with each to make a family.

1. Judy:	$\begin{array}{r} 6 \\ +5 \\ \hline 11 \end{array}$	2. Joan:	$\begin{array}{r} 11 \\ -4 \\ \hline 7 \end{array}$	3. Judy:	$\begin{array}{r} 11 \\ -8 \\ \hline 3 \end{array}$
----------	---	----------	---	----------	---

## What Is the Day?

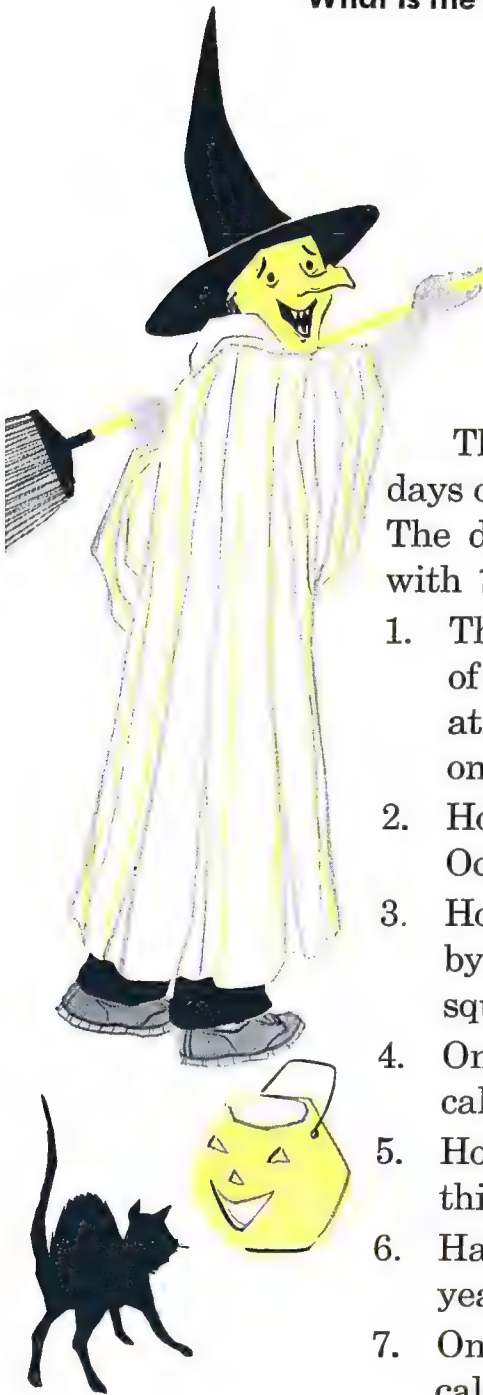
October						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

Calendar

Days have come and days will go,  
Each day numbered, row by row.

The calendar shows the days of the *week* and the days of the *month*. The days of the week have names. The days of the month have numbers, beginning with 1.

1. The calendar in the picture shows the month of October of certain *years*. Is it this year? Look at your school calendar and see if October 1 is on a Saturday.
2. How many days are there in October? Does October always have the same number of days?
3. How many Wednesdays are in the month shown by the calendar on this page? Hint: Count the squares that have numbers under Wednesday.
4. On what day of the week is October 3 on this calendar? on your school calendar?
5. How many Sundays in October are shown on this calendar? on your school calendar?
6. Halloween comes on what day of October every year?
7. On what day of the week is Halloween on this calendar? on your school calendar?



Look at a calendar for the whole year.

8. How many months are there in a year?
9. Read and copy the names of the months.

January	April	July	October
February	May	August	November
March	June	September	December
10. Short ways to write some of the names are: Jan. Feb. Mar. Apr. Aug. Sept. Oct. Nov. Dec. Write each short way beside the name that it stands for. What names are not shortened? Can you see why?
11. How many days has each month? Do they all have the same number of days? Name two that have a different number of days.
12. Read the names of the days of the week.

Sunday	Tuesday	Thursday	Saturday
Monday	Wednesday	Friday	
13. Here is a short way to write each name: Sun. Mon. Tues. Wed. Thur. Fri. Sat. Write the names in the long and the short ways.
14. How many days are in each full week?

There are 7 days in a week.

15. On what day of the week does Christmas come this year?
16. Find the month, the day of the month, and the day of the week of: Washington's Birthday, Memorial Day, Lincoln's Birthday, Independence Day, Veterans Day.





## Roman Numerals

One night Mary stayed with her friend Sue. In the morning they woke and heard the cuckoo clock strike seven. Look at the picture to see what seven o'clock on the cuckoo clock looks like.

The numbers on the cuckoo clock are *Roman* numerals. They are made with the letters I, V, X.

Mary copied the Roman numerals and put our numbers beside them, like this:

I 1	IV 4	VII 7	X 10
II 2	V 5	VIII 8	XI 11
III 3	VI 6	IX 9	XII 12

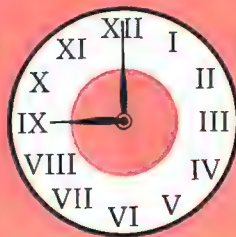
- How can you tell a Roman four from a Roman six? a Roman nine from a Roman eleven?
- Tell what these Roman numerals mean.

I      X      V      VI      IX      XII

- Keep a record of Roman numerals that you see. Find them in books, on clocks, or on buildings.
- Make a toy clockface with Roman numerals.

On some clocks with Roman numerals, four is made this way: IIII. In most places, a Roman four is made this way: IV.

- What time is shown by each of these clocks?



## Half Past, Quarter Past, and Quarter Of

At Bobby's bedtime the clock looks like picture A. The hour hand is halfway between 8 and 9. The minute hand is at 6, or halfway around the clockface. The time is half past eight, or eight thirty. We write it 8:30.

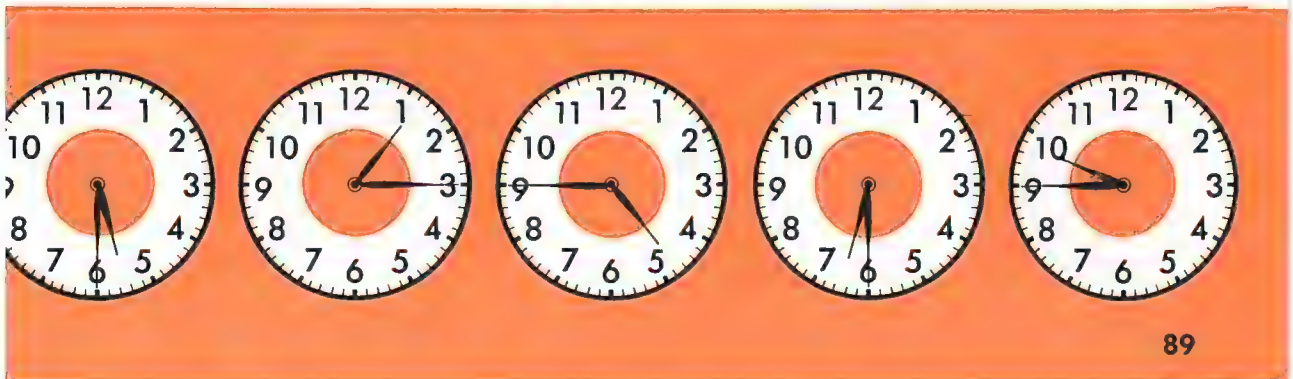
1. Why is 8:30 the same time as half past 8? To find out, count the minutes between 12 and 6. Count by fives. Why?

The time is quarter past 8, or 8:15, when the clock looks like picture B. The hour hand is one quarter of the way between 8 and 9. The minute hand is at 3, or one quarter of the way around the clockface. We write it 8:15.

2. Why is 8:15 the same time as quarter past 8? To find out, count the minutes between 12 and 3. Count by fives.

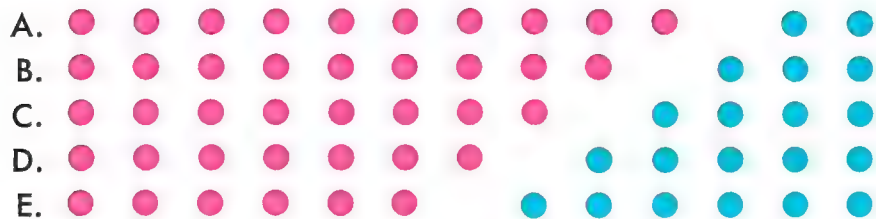
The time is quarter of 9, or fifteen minutes of 9, or eight forty-five, when the clock looks like picture C. The hour hand is three quarters of the way between 8 and 9. The minute hand is at 9. We write it 8:45.

3. Why is quarter of 9 the same as fifteen minutes of 9? To find out, count the minutes between 9 and 12 by fives.
4. Why is 8:45 the same as quarter of 9? To find out, count the minutes between 12 and 9 by fives.
5. What time is shown by each of these clocks?



## Addition Facts about Twelve

Ted made a chart like this to help in learning addition facts about 12.



From row A Ted learned that 12 means 10 and 2, or 2 and 10.

1. What two addition facts are shown by row B?
2. What addition facts can you learn from row C?
3. Row D shows what two addition facts?
4. Row E shows what addition fact?
5. Why is the fact from row E called a double?
6. Practice saying and writing these addition facts until you are sure of them.

10	2	9	3	8	4	7	5	6
$\begin{array}{r} 10 \\ + 2 \\ \hline 12 \end{array}$	$\begin{array}{r} 2 \\ + 10 \\ \hline 12 \end{array}$	$\begin{array}{r} 9 \\ + 3 \\ \hline 12 \end{array}$	$\begin{array}{r} 3 \\ + 9 \\ \hline 12 \end{array}$	$\begin{array}{r} 8 \\ + 4 \\ \hline 12 \end{array}$	$\begin{array}{r} 4 \\ + 8 \\ \hline 12 \end{array}$	$\begin{array}{r} 7 \\ + 5 \\ \hline 12 \end{array}$	$\begin{array}{r} 5 \\ + 7 \\ \hline 12 \end{array}$	$\begin{array}{r} 6 \\ + 6 \\ \hline 12 \end{array}$

7. What fact about 12 does this picture show?



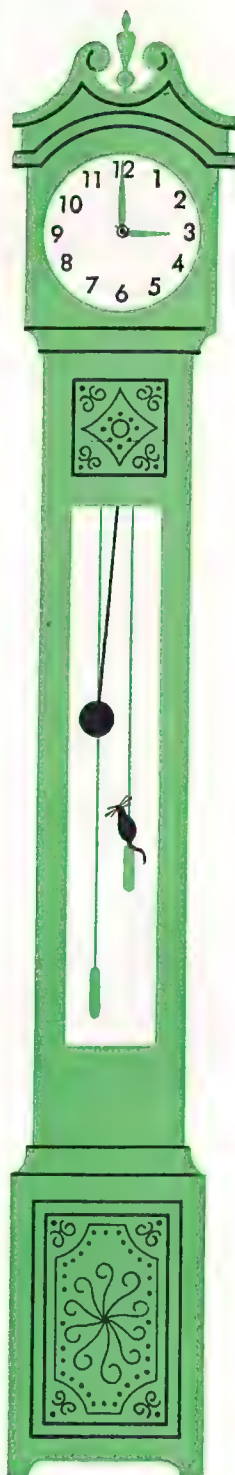




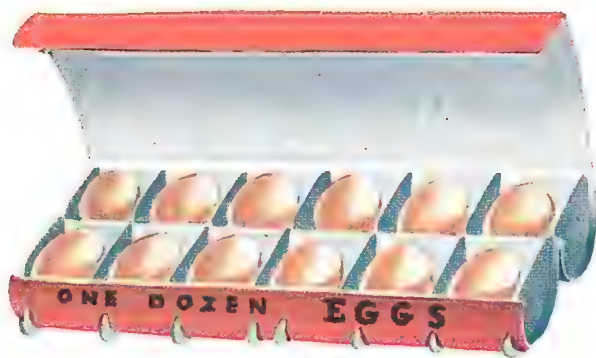
### How Much Time Have We?

Solve each of the following problems. If it is a “take away” problem, subtract. If it is a “put together” problem, add. Use the clockfaces for help if you need it.

1. The game begins at 10 o'clock. It is 8 o'clock now. How much time have we to get to the game?
2. Noon is at 12 o'clock daytime. It is now 7 A.M., or 7 in the morning. How much time have we before *noon*?
3. Bedtime is 8 o'clock at *night*. It is now 4 P.M., or 4 in the *afternoon*. How long before bedtime is it?
4. Midnight is at 12 o'clock nighttime. It is now 9 o'clock at night. In how many hours will it be *midnight*?
5. Dick rode 5 hours one day and 7 hours the next day. How many hours did he ride in the two days?
6. Ruth took 8 minutes to walk to the store and buy ice cream. She walked home in 4 minutes. How many minutes in all did her errand take?
7. Tom went on a trip. He was on a train 9 hours and on a bus 3 hours. How long did his trip take?
8. Jane went to visit her aunt. She left home at 6 o'clock. Her trip took 6 hours. At what time did she get to her aunt's house?
9. If a clock strikes 3, what should it strike 9 hours later?







## Subtracting from Twelve

Solve each problem. Then copy the example and write the answer.

- Jane bought a dozen eggs. Count the eggs in the picture. Are there a dozen? 1 dozen =   ?
- Cover all but 6 eggs in the picture above. How many eggs did you cover?  $12 - 6 = \underline{\quad ? \quad}$
- Jane used some of the dozen eggs for a cake. She had 9 eggs left. How many eggs did she use?



Cake



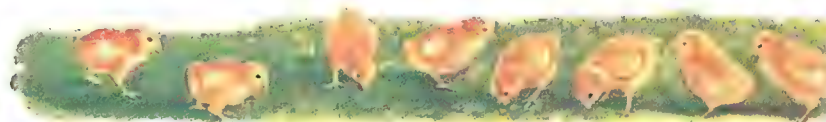
Eggs Left

$$12 - 9 = \underline{\quad ? \quad}$$

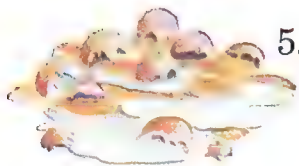


Mother Hen

- Last spring Kay set a dozen eggs under a mother hen. Eight of the eggs hatched, as you can see. How many eggs did not hatch? They are still under Mother Hen in the picture.  $12 - 8 = \underline{\quad ? \quad}$



Chicks

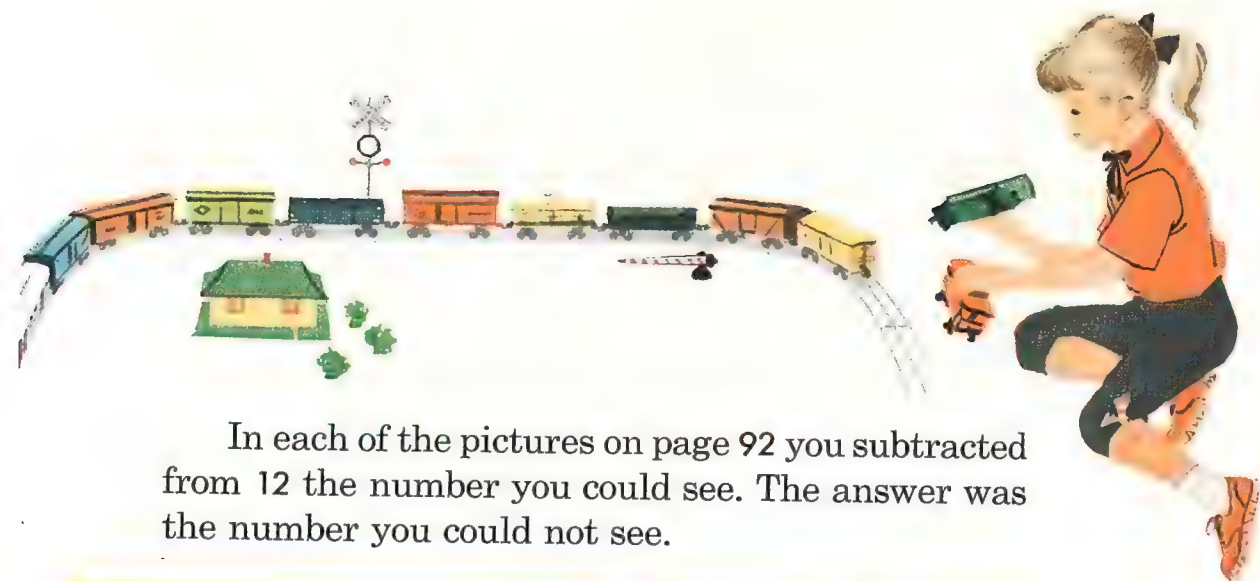


Broken Eggs

- Dick dropped a dozen eggs. Seven of the eggs did not break. The rest were a mess, as you can see. How many eggs broke?  $12 - 7 = \underline{\quad ? \quad}$



Unbroken Eggs



In each of the pictures on page 92 you subtracted from 12 the number you could see. The answer was the number you could not see.

We subtract the number left to find the number gone.

In each row cover the circles at the left. Write a number fact that tells how many circles you hid.

6. ● ● ● ● ● ● ● ● ● ● ● ● ●
7. ● ● ● ● ● ● ● ● ● ● ● ● ●
8. ● ● ● ● ● ● ● ● ● ● ● ● ●
9. ● ● ● ● ● ● ● ● ● ● ● ● ●
10. ● ● ● ● ● ● ● ● ● ● ● ● ●

Now cover the circles at the right in each row. Write a number fact that tells how many circles you hid.

11. Practice saying and writing these facts until you are sure of them.

$$\begin{array}{r} 12 \\ -10 \\ \hline 2 \end{array} \quad \begin{array}{r} 12 \\ -9 \\ \hline 3 \end{array} \quad \begin{array}{r} 12 \\ -8 \\ \hline 4 \end{array} \quad \begin{array}{r} 12 \\ -7 \\ \hline 5 \end{array} \quad \begin{array}{r} 12 \\ -6 \\ \hline 6 \end{array} \quad \begin{array}{r} 12 \\ -5 \\ \hline 7 \end{array} \quad \begin{array}{r} 12 \\ -4 \\ \hline 8 \end{array} \quad \begin{array}{r} 12 \\ -3 \\ \hline 9 \end{array} \quad \begin{array}{r} 12 \\ -2 \\ \hline 10 \end{array}$$

12. The picture of the trains shows  $12 - 2 = \underline{\quad ? \quad}$ .

## Learning Additions with Number Strips

Bob cut some lined paper across the lines into strips. He called them number strips. First he made a 20-strip with 20 squares and the numbers 1 to 20 in the squares.

Bob's 20-Strip

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----

Then Bob made a 3-strip like this: 

1	2	3
---	---	---

and a 10-strip like this: 

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

He wrote a number in the last square of each strip. How many squares are in the 3-strip? the 10-strip?

Bob made a strip for each number from 1 to 10. He put the four longest number strips under the 20-strip. Then he found another strip to put with each of these to make 13. Look at rows A, B, C, and D that Bob made.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----

A. 

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

1	2	3
---	---	---

 Bob learned two facts from row A:

B. 

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

1	2	3	4
---	---	---	---

 $10 + 3 = 13$   
 $3 + 10 = 13$

C. 

1	2	3	4	5	6	7	8
---	---	---	---	---	---	---	---

1	2	3	4	5
---	---	---	---	---

 What two facts did he learn from row B?

D. 

1	2	3	4	5	6	7
---	---	---	---	---	---	---

1	2	3	4	5	6
---	---	---	---	---	---

- What two numbers in row C make 13? in row D?
- Practice saying and writing these addition facts.

10	9	8	7	6	5	4	3
$\begin{array}{r} +3 \\ 10 \\ \hline 13 \end{array}$	$\begin{array}{r} +4 \\ 9 \\ \hline 13 \end{array}$	$\begin{array}{r} +5 \\ 8 \\ \hline 13 \end{array}$	$\begin{array}{r} +6 \\ 7 \\ \hline 13 \end{array}$	$\begin{array}{r} +7 \\ 6 \\ \hline 13 \end{array}$	$\begin{array}{r} +8 \\ 5 \\ \hline 13 \end{array}$	$\begin{array}{r} +9 \\ 4 \\ \hline 13 \end{array}$	$\begin{array}{r} +10 \\ 3 \\ \hline 13 \end{array}$

## Learning Subtractions with Number Strips

Bob looked at the number strips he used to make 13. First he looked at row A.

He said, "If I take away the 10-strip, the 3-strip will be left. If, instead, I take away the 3-strip, the 10-strip will be left."

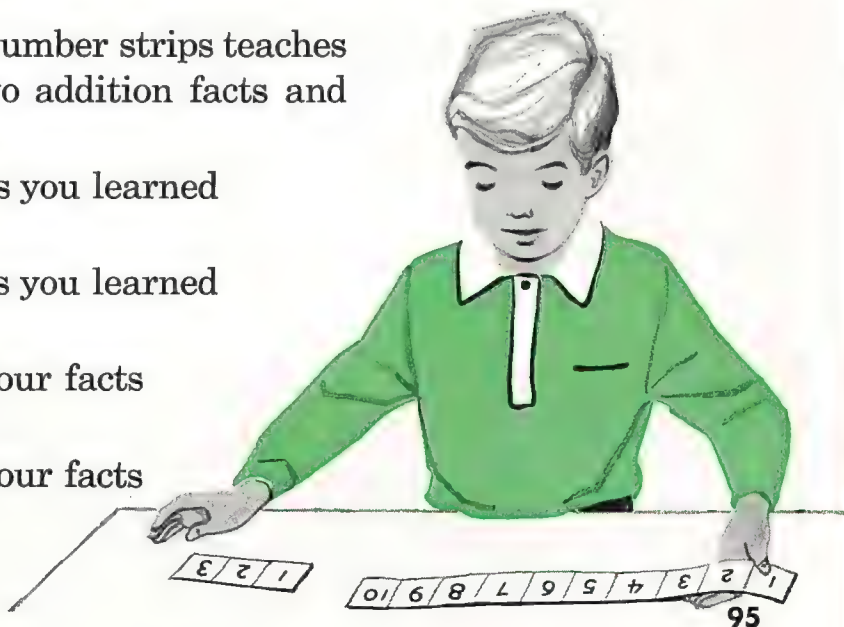
1.  $13 - 10 = \underline{\quad ? \quad}$        $13 - 3 = \underline{\quad ? \quad}$
2. Look at row B of Bob's number strips. What would be left if Bob took away the 9-strip?  $13 - 9 = \underline{\quad ? \quad}$   
the 4-strip?  $13 - 4 = \underline{\quad ? \quad}$
3. What two subtraction facts can you learn from row C?  
from row D?
4. Practice saying and writing these subtraction facts until you are sure of them.

$\begin{array}{r} 13 \\ -10 \\ \hline 3 \end{array}$	$\begin{array}{r} 13 \\ -9 \\ \hline 4 \end{array}$	$\begin{array}{r} 13 \\ -8 \\ \hline 5 \end{array}$	$\begin{array}{r} 13 \\ -7 \\ \hline 6 \end{array}$	$\begin{array}{r} 13 \\ -6 \\ \hline 7 \end{array}$	$\begin{array}{r} 13 \\ -5 \\ \hline 8 \end{array}$	$\begin{array}{r} 13 \\ -4 \\ \hline 9 \end{array}$	$\begin{array}{r} 13 \\ -3 \\ \hline 10 \end{array}$
--	---	---	---	---	---	---	--

## Making Up Fact Families

Each row of Bob's number strips teaches four facts about 13, two addition facts and two subtraction facts.

1. Write the four facts you learned from row A.
2. Write the four facts you learned from row B.
3. From row C write four facts about 13, 8, and 5.
4. From row D write four facts about 13, 7, and 6.







## Using Number Facts in Problems

DEVELOPING PROBLEM-SOLVING ABILITY

Last October the children in the third grade were getting ready for a Halloween party. The following problems are about things they made out of colored paper. If it is a “put together” problem, add. If it is a “take away” problem, subtract.

1. Ellen made 5 orange pumpkins. Judy made 6. Both together made how many pumpkins?
2. Sam made 12 witches. Jim made 9. Sam made how many more witches than Jim?
3. Joan made 9 black cats. How many more must she make to have 13 cats in all?
4. Ted hung 6 apples on one string and 6 on another. How many apples did he hang on the two strings?
5. Dick and Ruth cut out funny faces to put on the windows. Dick made 8 and Ruth made 5. How many faces were made by the two children together?
6. Bob made 12 black bats. He hung 7 of them on strings. The rest he hung in a row against the wall. How many bats were hung against the wall?
7. Sam wanted brooms for his 12 witches. He asked Kay and Betty to make them. Kay made 8. How many would Betty need to make?
8. Ann hung all but 5 of Joan's 13 black cats against the wall. How many did she hang?



## At the Bakery

COLUMN ADDITION—SUMS TO 13

- Betty was at the bakery with her mother. Betty looked at the things on the three shelves. She saw 4 apple pies, 5 squash pies, and 3 mince pies. How many pies was this in all?

Why should you add to find the answer?  
Study the steps. Say each missing number.

First see 4 and 5. Think   ?  .

Then think 9 and 3. Write   ?  .

$$\begin{array}{r} 4 \\ 5 \\ 3 \\ \hline 12 \end{array}$$

Solve these problems. Make sure each is a “put together” problem before you add.

- Betty saw 6 jars of peach jam, 2 jars of grape jam, and 5 jars of plum jam. How many jars of jam was this all together?
- Betty saw 3 trays of cupcakes with white frosting, 3 trays of cupcakes with brown frosting, and 6 trays of cupcakes with pink frosting. How many trays of cupcakes was this in all?

Copy each example and add down. Check by going over your work again. Do not add up.

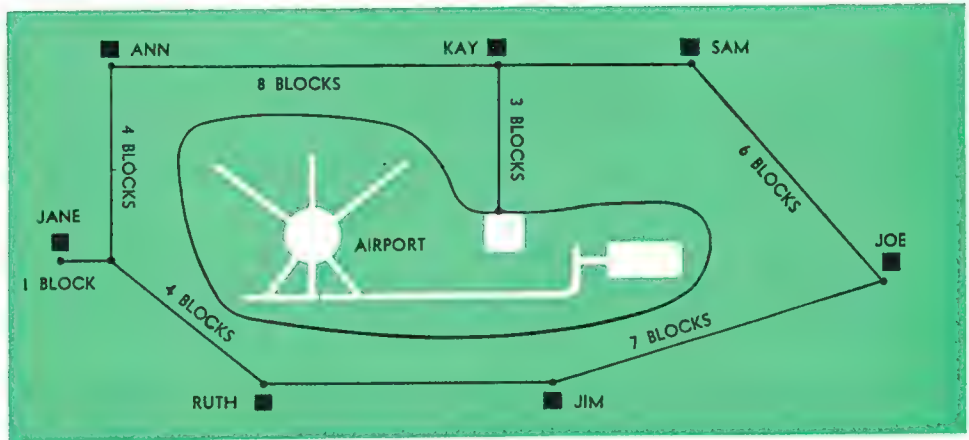
4.	5	6	5	2	3	3	6	3	3	3
	4	1	1	1	1	4	2	3	6	2
	<u>4</u>	<u>6</u>	<u>7</u>	<u>9</u>	<u>9</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>2</u>	<u>8</u>



## How Far Is It?

APPLYING ADDITION AND SUBTRACTION FACTS

Ann made a map to show the airport, her own house, and the houses of some of her friends. She showed some of the distances in *blocks*.



Lines show sidewalks. Stay on the sidewalks. Use Ann's map to help you answer these questions.

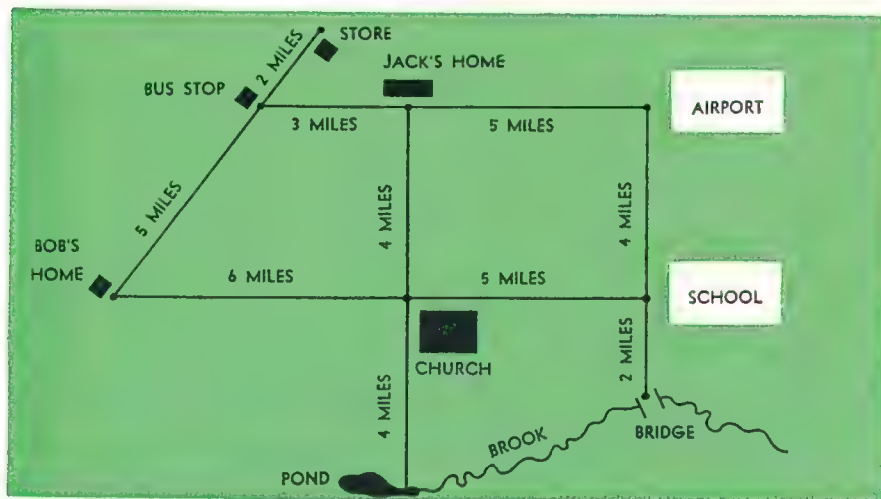
1. How far in blocks is it from Ann's house to Jane's?
2. How far is it from Ann's house to the airport? from Ann's house to Ruth's? from Sam's house to Jim's?
3. If Joe has to go 13 blocks to get to Ruth's house, how far is it in blocks from Jim's house to Ruth's?
4. Sam goes to Kay's house and then to Ann's. In all he goes 12 blocks. How far is it in blocks from Sam's house to Kay's?
5. Use your answer to question 4 to find how far it is from Sam's house to the airport.
6. Use your answer to question 1 to find how far it is from Jane's house to Kay's.



## Distances in the Country

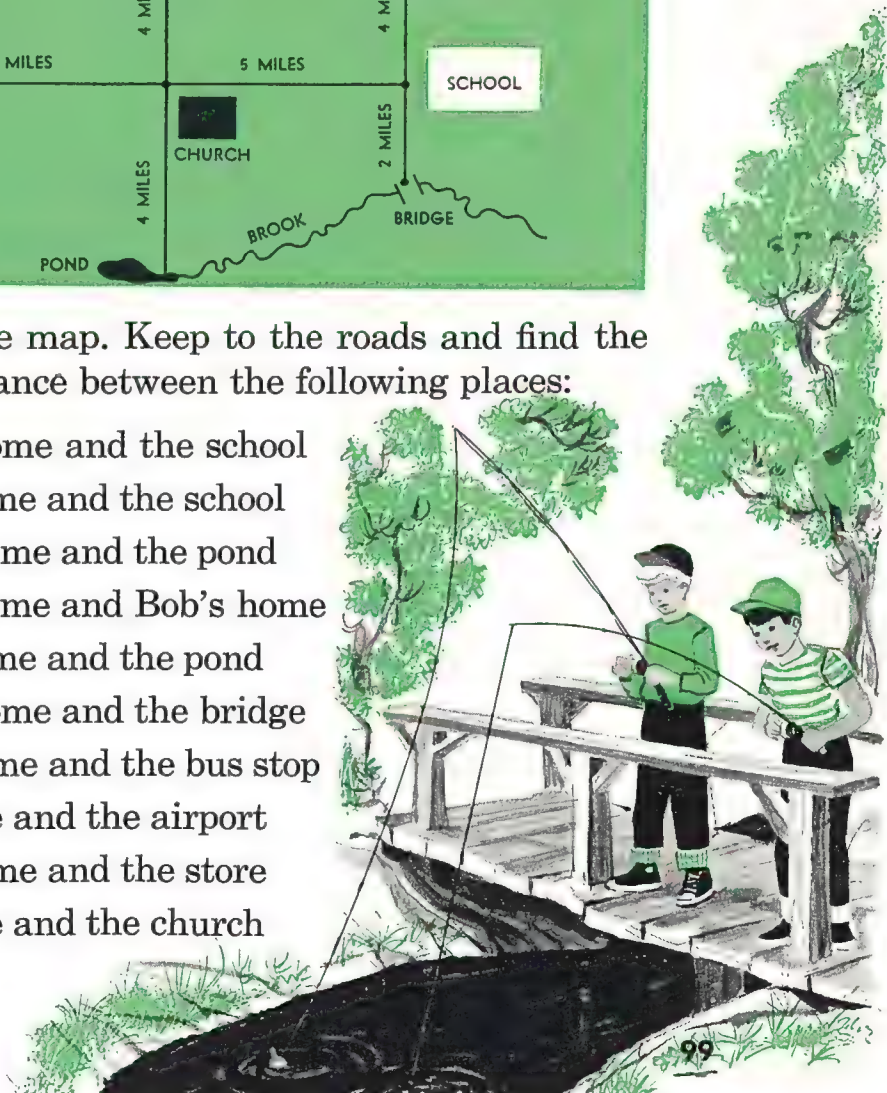
SINGLE-COLUMN ADDITION—SUMS TO 13

The farm where Jack lived was a big one. The map shows the farm and some other places. Lines show roads. Distances between places are given in miles.



Study the map. Keep to the roads and find the shortest distance between the following places:

1. Jack's home and the school
2. Bob's home and the school
3. Jack's home and the pond
4. Jack's home and Bob's home
5. Bob's home and the pond
6. Jack's home and the bridge
7. Bob's home and the bus stop
8. The store and the airport
9. Bob's home and the store
10. The store and the church





# Practice to Remember

Copy and add.

1.  $\begin{array}{r} 5 \\ 8 \end{array}$   $\begin{array}{r} 7 \\ 5 \end{array}$   $\begin{array}{r} 2 \\ 3 \end{array}$   $\begin{array}{r} 8 \\ 5 \end{array}$   $\begin{array}{r} 2 \\ 4 \end{array}$   $\begin{array}{r} 8 \\ 2 \end{array}$   $\begin{array}{r} 7 \\ 6 \end{array}$   $\begin{array}{r} 7 \\ 4 \end{array}$   $\begin{array}{r} 1 \\ 9 \end{array}$
2.  $\begin{array}{r} 6 \\ 7 \end{array}$   $\begin{array}{r} 9 \\ 1 \end{array}$   $\begin{array}{r} 9 \\ 3 \end{array}$   $\begin{array}{r} 3 \\ 7 \end{array}$   $\begin{array}{r} 4 \\ 3 \end{array}$   $\begin{array}{r} 7 \\ 3 \end{array}$   $\begin{array}{r} 9 \\ 4 \end{array}$   $\begin{array}{r} 2 \\ 8 \end{array}$   $\begin{array}{r} 1 \\ 8 \end{array}$
3.  $\begin{array}{r} 9 \\ 2 \end{array}$   $\begin{array}{r} 4 \\ 9 \end{array}$   $\begin{array}{r} 2 \\ 7 \end{array}$   $\begin{array}{r} 7 \\ 2 \end{array}$   $\begin{array}{r} 5 \\ 7 \end{array}$   $\begin{array}{r} 3 \\ 9 \end{array}$   $\begin{array}{r} 1 \\ 7 \end{array}$   $\begin{array}{r} 2 \\ 9 \end{array}$   $\begin{array}{r} 4 \\ 8 \end{array}$
4.  $\begin{array}{r} 3 \\ 8 \end{array}$   $\begin{array}{r} 8 \\ 4 \end{array}$   $\begin{array}{r} 6 \\ 3 \end{array}$   $\begin{array}{r} 1 \\ 0 \end{array}$   $\begin{array}{r} 6 \\ 6 \end{array}$   $\begin{array}{r} 6 \\ 4 \end{array}$   $\begin{array}{r} 4 \\ 6 \end{array}$   $\begin{array}{r} 5 \\ 5 \end{array}$   $\begin{array}{r} 3 \\ 5 \end{array}$

Copy and subtract. Check each answer.

5.  $\begin{array}{r} 13 \\ 8 \end{array}$   $\begin{array}{r} 12 \\ 5 \end{array}$   $\begin{array}{r} 5 \\ 3 \end{array}$   $\begin{array}{r} 13 \\ 5 \end{array}$   $\begin{array}{r} 11 \\ 6 \end{array}$   $\begin{array}{r} 10 \\ 2 \end{array}$   $\begin{array}{r} 13 \\ 6 \end{array}$   $\begin{array}{r} 9 \\ 5 \end{array}$   $\begin{array}{r} 10 \\ 9 \end{array}$
6.  $\begin{array}{r} 13 \\ 7 \end{array}$   $\begin{array}{r} 7 \\ 5 \end{array}$   $\begin{array}{r} 10 \\ 1 \end{array}$   $\begin{array}{r} 12 \\ 3 \end{array}$   $\begin{array}{r} 11 \\ 3 \end{array}$   $\begin{array}{r} 10 \\ 7 \end{array}$   $\begin{array}{r} 11 \\ 8 \end{array}$   $\begin{array}{r} 10 \\ 3 \end{array}$   $\begin{array}{r} 13 \\ 4 \end{array}$
7.  $\begin{array}{r} 10 \\ 8 \end{array}$   $\begin{array}{r} 9 \\ 4 \end{array}$   $\begin{array}{r} 9 \\ 8 \end{array}$   $\begin{array}{r} 11 \\ 2 \end{array}$   $\begin{array}{r} 13 \\ 9 \end{array}$   $\begin{array}{r} 9 \\ 7 \end{array}$   $\begin{array}{r} 12 \\ 7 \end{array}$   $\begin{array}{r} 12 \\ 9 \end{array}$   $\begin{array}{r} 8 \\ 7 \end{array}$
8.  $\begin{array}{r} 11 \\ 9 \end{array}$   $\begin{array}{r} 12 \\ 8 \end{array}$   $\begin{array}{r} 9 \\ 6 \end{array}$   $\begin{array}{r} 12 \\ 4 \end{array}$   $\begin{array}{r} 12 \\ 6 \end{array}$   $\begin{array}{r} 10 \\ 4 \end{array}$   $\begin{array}{r} 10 \\ 6 \end{array}$   $\begin{array}{r} 10 \\ 5 \end{array}$   $\begin{array}{r} 8 \\ 5 \end{array}$

Make "I Will Help You" cards for examples you get wrong. Practice with them until you know the facts.

Copy each example and add down. Check by going over your work again. Do not add up.

9.  $\begin{array}{r} 8 \\ 1 \\ 4 \end{array}$   $\begin{array}{r} 6 \\ 2 \\ 3 \end{array}$   $\begin{array}{r} 4 \\ 3 \\ 5 \end{array}$   $\begin{array}{r} 2 \\ 4 \\ 7 \end{array}$   $\begin{array}{r} 1 \\ 7 \\ 4 \end{array}$   $\begin{array}{r} 1 \\ 5 \\ 5 \end{array}$   $\begin{array}{r} 5 \\ 2 \\ 4 \end{array}$   $\begin{array}{r} 7 \\ 2 \\ 3 \end{array}$   $\begin{array}{r} 3 \\ 5 \\ 5 \end{array}$

## Finding What You Need to Study Again

If you need to study something again, the page numbers at the side tell you where to find it.

1. Write with words: 300; 303; 330; 353.
2. Write with figures: two hundred five; two hundred fifty; two hundred; two hundred twenty-five.

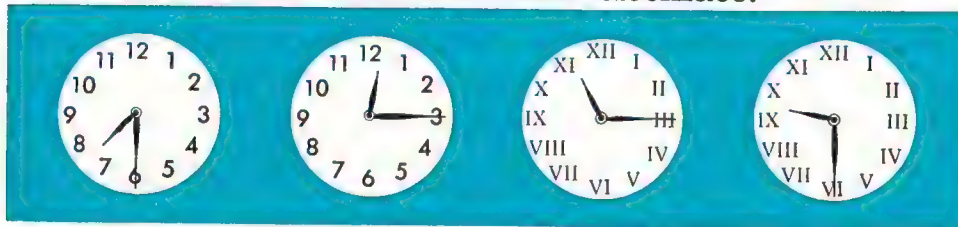
Copy each sentence and write the missing number.

3. 703 means   ?   hundreds   ?   tens   ?   ones.
4. 703 can also mean   ?   tens   ?   ones.
5. \$7.03 is read:   ?   dollars and   ?   cents.
6. \$7.30 is read:   ?   dollars and   ?   cents.
7. One dollar is worth the same as   ?   half dollars.
8. One dollar is worth the same as   ?   quarters.

Write a number family of four facts with each of the following number groups.

9. 8, 3, 11      3, 9, 12      5, 7, 12      5, 8, 13      6, 7, 13

Write the time shown on each clockface.



10. a.   ?        b.   ?        c.   ?        d.   ?

Copy each example below, add down, and write the answer.

11.    4       3       2       1       5       7       3       1       4  
       3       5       7       8       2       1       6       6       4  
       4      5      3      2      6      4      4      5      3

Page

80, 81

80, 81

80, 81

81

82, 83

82, 83

84

84

72, 90,  
92-95

88, 89

## Finding Out What You Know

### A. Word Meanings

Write the number of each sentence, and the word that is missing. Choose the word from the list at the left.

thirty  
fifty  
hundred  
thousand  
decimal  
calendar  
hours  
minutes  
Roman  
noon  
midnight  
dollar  
after  
before  
bill

1. A.M. means ? noon.
2. P.M. means ? noon.
3. Days of the months are shown on a ?.
4. There are 60 ? in one hour.
5. Between dollars and cents we put a ? point.
6. There are 5 tens in ?.
7. There are 3 tens in ?.
8. There are 10 tens in one ?.
9. There are 10 hundreds in a ?.
10. A paper dollar is called a dollar ?.
11. The number IV is a ? four.
12. 12 o'clock at night is called ?.

### B. Arithmetic Understandings

1. Write in words: 200, 202, 220, 222, \$2.20.
2. Write in figures: five hundred three; five hundred; five hundred thirty; three hundred fifty-seven; three dollars; three dollars and seven cents.
3. Write the number of the clock that shows: 8 o'clock; half past 8; quarter of 8; quarter past 8.



I

II

III

IV

V

### C. Number Facts and Skills

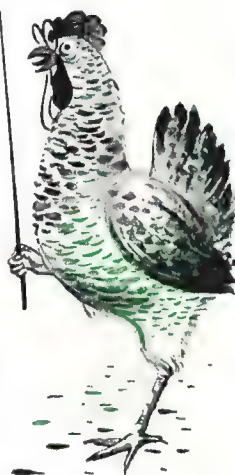
Copy each example and write the answer.

1.  $\begin{array}{r} 8 \\ +5 \\ \hline \end{array}$   $\begin{array}{r} 4 \\ +8 \\ \hline \end{array}$   $\begin{array}{r} 5 \\ +6 \\ \hline \end{array}$   $\begin{array}{r} 9 \\ +3 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ +9 \\ \hline \end{array}$   $\begin{array}{r} 6 \\ +7 \\ \hline \end{array}$   $\begin{array}{r} 9 \\ +4 \\ \hline \end{array}$   $\begin{array}{r} 3 \\ +8 \\ \hline \end{array}$   $\begin{array}{r} 6 \\ +6 \\ \hline \end{array}$   $\begin{array}{r} 7 \\ +4 \\ \hline \end{array}$
2.  $\begin{array}{r} 13 \\ -4 \\ \hline \end{array}$   $\begin{array}{r} 12 \\ -8 \\ \hline \end{array}$   $\begin{array}{r} 11 \\ -4 \\ \hline \end{array}$   $\begin{array}{r} 12 \\ -5 \\ \hline \end{array}$   $\begin{array}{r} 13 \\ -8 \\ \hline \end{array}$   $\begin{array}{r} 12 \\ -7 \\ \hline \end{array}$   $\begin{array}{r} 13 \\ -9 \\ \hline \end{array}$   $\begin{array}{r} 11 \\ -6 \\ \hline \end{array}$   $\begin{array}{r} 11 \\ -2 \\ \hline \end{array}$   $\begin{array}{r} 11 \\ -3 \\ \hline \end{array}$
3.  $\begin{array}{r} 12 \\ -3 \\ \hline \end{array}$   $\begin{array}{r} 13 \\ -7 \\ \hline \end{array}$   $\begin{array}{r} 11 \\ -8 \\ \hline \end{array}$   $\begin{array}{r} 13 \\ -5 \\ \hline \end{array}$   $\begin{array}{r} 12 \\ -6 \\ \hline \end{array}$   $\begin{array}{r} 11 \\ -5 \\ \hline \end{array}$   $\begin{array}{r} 12 \\ -9 \\ \hline \end{array}$   $\begin{array}{r} 13 \\ -6 \\ \hline \end{array}$   $\begin{array}{r} 12 \\ -4 \\ \hline \end{array}$   $\begin{array}{r} 11 \\ -9 \\ \hline \end{array}$
4.  $\begin{array}{r} 2 \\ 4 \\ +5 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ 6 \\ +6 \\ \hline \end{array}$   $\begin{array}{r} 3 \\ 2 \\ +7 \\ \hline \end{array}$   $\begin{array}{r} 5 \\ 3 \\ +3 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ 1 \\ +9 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ 4 \\ +8 \\ \hline \end{array}$   $\begin{array}{r} 5 \\ 4 \\ +2 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ 2 \\ +9 \\ \hline \end{array}$   $\begin{array}{r} 3 \\ 4 \\ +5 \\ \hline \end{array}$   $\begin{array}{r} 6 \\ 2 \\ +4 \\ \hline \end{array}$

### D. Problem Solving

Solve these problems.

1. Jack kept his rock collection in two boxes. He had 4 pieces of rock in one box and 7 in the other. How many rocks were in his whole collection?
2. Betty had a collection of 12 paper dolls in an envelope. She took 6 dolls out. How many dolls were left in the envelope?
3. Dick had 12 days to wait for Christmas. Each day he crossed out a number on the calendar. When he had crossed out 7 numbers he had how many days to wait?
4. Joan left on a trip at 8 o'clock and was back at 12 o'clock. How many hours was she gone?
5. Joe bought a 2-cent stamp, a 3-cent stamp, and a 6-cent stamp. How much did the stamps cost him all together?







# Adding and Subtracting Two-Place Numbers

## Sums of Fourteen

Bob found he could use his number strips to find two numbers that together make 14.

- Study the number strips in the pictures below.  
Say the two numbers in each row that make 14.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----

A.	1	2	3	4	5	6	7	8	9	10	1	2	3	4
----	---	---	---	---	---	---	---	---	---	----	---	---	---	---

From row A  
Bob learned  
two facts:

B.	1	2	3	4	5	6	7	8	9	1	2	3	4	5
----	---	---	---	---	---	---	---	---	---	---	---	---	---	---

$$10 + 4 = 14$$

$$4 + 10 = 14$$

C.	1	2	3	4	5	6	7	8	1	2	3	4	5	6
----	---	---	---	---	---	---	---	---	---	---	---	---	---	---

D.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
----	---	---	---	---	---	---	---	---	---	---	---	---	---	---

- Write the two addition facts you can learn from row B; from row C; from row D.

Look at the number strips.

- In what way is  $10 + 4$  like  $9 + 5$ ?
- Does  $8 + 6 = 7 + 7$ ? Why?
- Does  $8 + 6 = 6 + 8$ ? Why?
- Practice saying and writing these addition facts until you are sure of them.

$$\begin{array}{r} 10 \\ +4 \\ \hline 14 \end{array}$$

$$\begin{array}{r} 9 \\ +5 \\ \hline 14 \end{array}$$

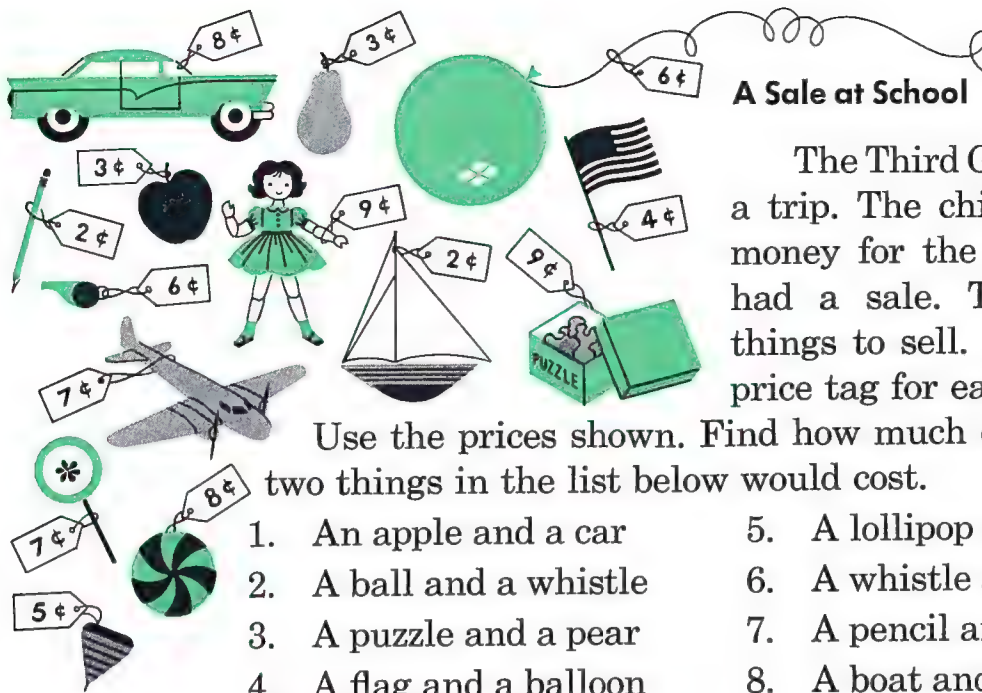
$$\begin{array}{r} 8 \\ +6 \\ \hline 14 \end{array}$$

$$\begin{array}{r} 7 \\ +7 \\ \hline 14 \end{array}$$

$$\begin{array}{r} 6 \\ +8 \\ \hline 14 \end{array}$$

$$\begin{array}{r} 5 \\ +9 \\ \hline 14 \end{array}$$

$$\begin{array}{r} 4 \\ +10 \\ \hline 14 \end{array}$$



## A Sale at School

The Third Grade planned a trip. The children needed money for the trip, so they had a sale. They brought things to sell. They made a price tag for each thing.

Use the prices shown. Find how much each group of two things in the list below would cost.

1. An apple and a car
2. A ball and a whistle
3. A puzzle and a pear
4. A flag and a balloon
5. A lollipop and a car
6. A whistle and a plane
7. A pencil and a doll
8. A boat and a car

### Practice to Remember

Copy each example and write the answer.

1. 
$$\begin{array}{r} 5 \\ +3 \\ \hline \end{array}$$
 
$$\begin{array}{r} 0 \\ +0 \\ \hline \end{array}$$
 
$$\begin{array}{r} 3 \\ +7 \\ \hline \end{array}$$
 
$$\begin{array}{r} 6 \\ +8 \\ \hline \end{array}$$
 
$$\begin{array}{r} 3 \\ +9 \\ \hline \end{array}$$
 
$$\begin{array}{r} 7 \\ +7 \\ \hline \end{array}$$
 
$$\begin{array}{r} 7 \\ +3 \\ \hline \end{array}$$
 
$$\begin{array}{r} 8 \\ +6 \\ \hline \end{array}$$
 
$$\begin{array}{r} 1 \\ +0 \\ \hline \end{array}$$
2. 
$$\begin{array}{r} 5 \\ +5 \\ \hline \end{array}$$
 
$$\begin{array}{r} 9 \\ +2 \\ \hline \end{array}$$
 
$$\begin{array}{r} 2 \\ +4 \\ \hline \end{array}$$
 
$$\begin{array}{r} 6 \\ +4 \\ \hline \end{array}$$
 
$$\begin{array}{r} 5 \\ +9 \\ \hline \end{array}$$
 
$$\begin{array}{r} 6 \\ +6 \\ \hline \end{array}$$
 
$$\begin{array}{r} 9 \\ +1 \\ \hline \end{array}$$
 
$$\begin{array}{r} 5 \\ +6 \\ \hline \end{array}$$
 
$$\begin{array}{r} 2 \\ +8 \\ \hline \end{array}$$
3. 
$$\begin{array}{r} 9 \\ +5 \\ \hline \end{array}$$
 
$$\begin{array}{r} 8 \\ +2 \\ \hline \end{array}$$
 
$$\begin{array}{r} 5 \\ +8 \\ \hline \end{array}$$
 
$$\begin{array}{r} 4 \\ +6 \\ \hline \end{array}$$
 
$$\begin{array}{r} 4 \\ +4 \\ \hline \end{array}$$
 
$$\begin{array}{r} 1 \\ +9 \\ \hline \end{array}$$
 
$$\begin{array}{r} 8 \\ +3 \\ \hline \end{array}$$
 
$$\begin{array}{r} 9 \\ +3 \\ \hline \end{array}$$
 
$$\begin{array}{r} 3 \\ +5 \\ \hline \end{array}$$
4. 
$$\begin{array}{r} 6 \\ +5 \\ \hline \end{array}$$
 
$$\begin{array}{r} 4 \\ +9 \\ \hline \end{array}$$
 
$$\begin{array}{r} 4 \\ +7 \\ \hline \end{array}$$
 
$$\begin{array}{r} 9 \\ +4 \\ \hline \end{array}$$
 
$$\begin{array}{r} 2 \\ +9 \\ \hline \end{array}$$
 
$$\begin{array}{r} 8 \\ +4 \\ \hline \end{array}$$
 
$$\begin{array}{r} 7 \\ +4 \\ \hline \end{array}$$
 
$$\begin{array}{r} 7 \\ +5 \\ \hline \end{array}$$
 
$$\begin{array}{r} 6 \\ +7 \\ \hline \end{array}$$
5. 
$$\begin{array}{r} 4 \\ +3 \\ \hline \end{array}$$
 
$$\begin{array}{r} 4 \\ +8 \\ \hline \end{array}$$
 
$$\begin{array}{r} 1 \\ +7 \\ \hline \end{array}$$
 
$$\begin{array}{r} 8 \\ +5 \\ \hline \end{array}$$
 
$$\begin{array}{r} 3 \\ +2 \\ \hline \end{array}$$
 
$$\begin{array}{r} 7 \\ +6 \\ \hline \end{array}$$
 
$$\begin{array}{r} 3 \\ +8 \\ \hline \end{array}$$
 
$$\begin{array}{r} 5 \\ +2 \\ \hline \end{array}$$
 
$$\begin{array}{r} 5 \\ +7 \\ \hline \end{array}$$

Make "I Will Help You" cards for facts you get wrong. Use the cards until you feel sure you know the facts.



# A Witch Hunt

PRACTICE ON SUMS OF 9 TO 14

Last Halloween some children had a witch hunt. They hunted in pairs for paper witches. The pair of children finding the most witches won the game.

Do these examples to find out how many witches each pair found.

$$\begin{array}{r} 5 \\ 5 \end{array} \quad \begin{array}{r} 5 \\ 7 \end{array} \quad \begin{array}{r} 9 \\ 4 \end{array} \quad \begin{array}{r} 7 \\ 4 \end{array} \quad \begin{array}{r} 4 \\ 9 \end{array} \quad \begin{array}{r} 5 \\ 6 \end{array}$$

$$\begin{array}{r} 6 \\ 7 \end{array} \quad \begin{array}{r} 6 \\ 5 \end{array} \quad \begin{array}{r} 5 \\ 8 \end{array} \quad \begin{array}{r} 8 \\ 4 \end{array} \quad \begin{array}{r} 8 \\ 3 \end{array} \quad \begin{array}{r} 4 \\ 5 \end{array}$$

Copy each example, add, and check your work.

$$\begin{array}{r} 1 \\ 8 \end{array} \quad \begin{array}{r} 4 \\ 7 \end{array} \quad \begin{array}{r} 8 \\ 6 \end{array} \quad \begin{array}{r} 2 \\ 7 \end{array} \quad \begin{array}{r} 9 \\ 1 \end{array} \quad \begin{array}{r} 7 \\ 5 \end{array} \quad \begin{array}{r} 5 \\ 9 \end{array} \quad \begin{array}{r} 3 \\ 8 \end{array} \quad \begin{array}{r} 8 \\ 5 \end{array} \quad \begin{array}{r} 6 \\ 6 \end{array}$$

$$\begin{array}{r} 6 \\ 4 \end{array} \quad \begin{array}{r} 7 \\ 2 \end{array} \quad \begin{array}{r} 4 \\ 8 \end{array} \quad \begin{array}{r} 9 \\ 5 \end{array} \quad \begin{array}{r} 3 \\ 7 \end{array} \quad \begin{array}{r} 5 \\ 4 \end{array} \quad \begin{array}{r} 9 \\ 3 \end{array} \quad \begin{array}{r} 2 \\ 9 \end{array} \quad \begin{array}{r} 10 \\ 2 \end{array} \quad \begin{array}{r} 7 \\ 3 \end{array}$$

$$\begin{array}{r} 3 \\ 6 \end{array} \quad \begin{array}{r} 1 \\ 9 \end{array} \quad \begin{array}{r} 7 \\ 7 \end{array} \quad \begin{array}{r} 9 \\ 2 \end{array} \quad \begin{array}{r} 8 \\ 2 \end{array} \quad \begin{array}{r} 3 \\ 9 \end{array} \quad \begin{array}{r} 8 \\ 1 \end{array} \quad \begin{array}{r} 6 \\ 3 \end{array} \quad \begin{array}{r} 10 \\ 1 \end{array} \quad \begin{array}{r} 4 \\ 6 \end{array}$$

$$\begin{array}{r} 3 \\ 6 \\ 5 \end{array} \quad \begin{array}{r} 2 \\ 7 \\ 4 \end{array} \quad \begin{array}{r} 6 \\ 3 \\ 3 \end{array} \quad \begin{array}{r} 8 \\ 1 \\ 2 \end{array} \quad \begin{array}{r} 7 \\ 2 \\ 1 \end{array} \quad \begin{array}{r} 1 \\ 8 \\ 0 \end{array} \quad \begin{array}{r} 1 \\ 1 \\ 8 \end{array} \quad \begin{array}{r} 5 \\ 3 \\ 6 \end{array} \quad \begin{array}{r} 5 \\ 2 \\ 4 \end{array} \quad \begin{array}{r} 7 \\ 1 \\ 5 \end{array}$$

7. In adding three numbers, you use two number facts. In adding  $3 + 6 + 5$ , what is the first number fact?  $3 + 6 = \underline{\quad}$  ? The second number fact is  $9 + 5 = 14$ . Why? Try to tell what two number facts help you to find the answer to each of the other examples.





## Subtracting from Fourteen



Bob studied the number strips he used to make 14.  
He said, "If I take away the 10-strip in row A, the 4-strip is left. If, instead, I take away the 4-strip, the 10-strip is left."

1. From row A, Bob learned two subtraction facts:  
 $14 - 10 = ?$ ;  $14 - 4 = ?$ .
2. What are the subtraction facts you can learn from row B? from row C? from row D?
3. Practice saying and writing these subtraction facts until you are sure of them.

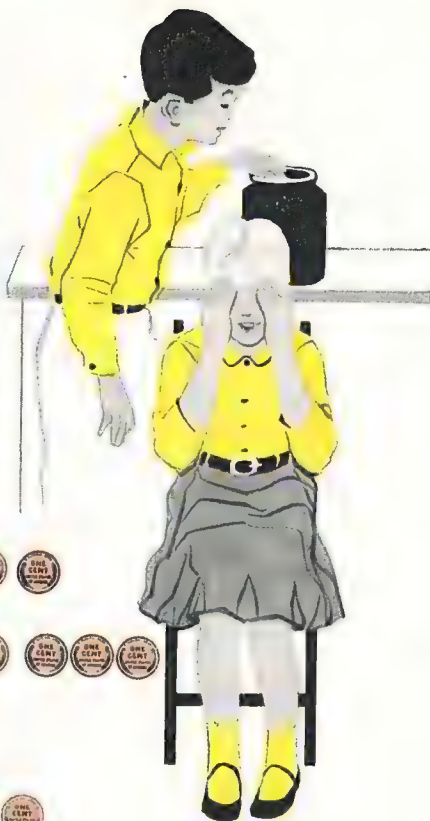
$\begin{array}{r} 14 \\ -10 \\ \hline 4 \end{array}$	$\begin{array}{r} 14 \\ -9 \\ \hline 5 \end{array}$	$\begin{array}{r} 14 \\ -8 \\ \hline 6 \end{array}$	$\begin{array}{r} 14 \\ -7 \\ \hline 7 \end{array}$	$\begin{array}{r} 14 \\ -6 \\ \hline 8 \end{array}$	$\begin{array}{r} 14 \\ -5 \\ \hline 9 \end{array}$	$\begin{array}{r} 14 \\ -4 \\ \hline 10 \end{array}$
--	---	---	---	---	---	--

## Families of Facts

1. Row A of Bob's number strips teaches two addition facts and two subtraction facts. Write the four facts.
2. Write a family of four facts that row B teaches.
3. From row C, write the facts about 14, 8, 6.
4. You can learn one subtraction fact and one addition fact from row D. Write these two facts.

## How Many Were Hidden?

Dick and Ruth played a game with 14 pennies. Each took turns hiding some of the pennies while the other's eyes were closed. Whenever Dick hid the pennies he asked, "How many pennies did I hide?" So did Ruth. The pictures below show the pennies that were *not* hidden each time. How many were hidden?



### Practice to Remember

Copy and subtract. Check by adding. Practice with "I Will Help You" cards the facts you get wrong.

- |    |   |   |   |   |   |   |   |   |   |
|----|---|---|---|---|---|---|---|---|---|
| 1. | $\begin{array}{r} 10 \\ -7 \\ \hline \end{array}$ | $\begin{array}{r} 14 \\ -8 \\ \hline \end{array}$ | $\begin{array}{r} 12 \\ -9 \\ \hline \end{array}$ | $\begin{array}{r} 14 \\ -7 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ -3 \\ \hline \end{array}$ | $\begin{array}{r} 14 \\ -6 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ -5 \\ \hline \end{array}$ | $\begin{array}{r} 11 \\ -2 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ -4 \\ \hline \end{array}$ |
| 2. | $\begin{array}{r} 14 \\ -9 \\ \hline \end{array}$ | $\begin{array}{r} 12 \\ -6 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ -1 \\ \hline \end{array}$ | $\begin{array}{r} 11 \\ -6 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ -8 \\ \hline \end{array}$ | $\begin{array}{r} 14 \\ -5 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ -2 \\ \hline \end{array}$ | $\begin{array}{r} 13 \\ -8 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ -6 \\ \hline \end{array}$ |
| 3. | $\begin{array}{r} 10 \\ -9 \\ \hline \end{array}$ | $\begin{array}{r} 11 \\ -3 \\ \hline \end{array}$ | $\begin{array}{r} 12 \\ -3 \\ \hline \end{array}$ | $\begin{array}{r} 11 \\ -5 \\ \hline \end{array}$ | $\begin{array}{r} 13 \\ -9 \\ \hline \end{array}$ | $\begin{array}{r} 11 \\ -7 \\ \hline \end{array}$ | $\begin{array}{r} 13 \\ -4 \\ \hline \end{array}$ | $\begin{array}{r} 11 \\ -9 \\ \hline \end{array}$ | $\begin{array}{r} 12 \\ -4 \\ \hline \end{array}$ |
| 4. | $\begin{array}{r} 11 \\ -4 \\ \hline \end{array}$ | $\begin{array}{r} 12 \\ -5 \\ \hline \end{array}$ | $\begin{array}{r} 13 \\ -7 \\ \hline \end{array}$ | $\begin{array}{r} 12 \\ -8 \\ \hline \end{array}$ | $\begin{array}{r} 13 \\ -5 \\ \hline \end{array}$ | $\begin{array}{r} 1 \\ -1 \\ \hline \end{array}$  | $\begin{array}{r} 13 \\ -6 \\ \hline \end{array}$ | $\begin{array}{r} 11 \\ -8 \\ \hline \end{array}$ | $\begin{array}{r} 12 \\ -7 \\ \hline \end{array}$ |

÷

×

÷

×

÷

×

December						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	



## How Many Days?

Bill said, "Christmas is on December 25. Today is December 10. How many days must we wait for Christmas?"

$$\begin{array}{r} 25 \\ - 10 \\ \hline 15 \end{array}$$

Bill subtracted 10 from 25. First he subtracted the ones, and then the tens. He said, "We must wait 15 days." Count on the calendar. See if Bill was right.

Try these problems.

1. How long before Halloween is it? Halloween is on October 31. Today is October 10.
2. How many days will it be before vacation? Vacation begins June 17. Today is June 11.



## What Day of the Month?

Ann said, "When will they get here? They started home January 15. They said the trip would take 10 days and nights."

$$\begin{array}{r} 15 \\ + 10 \\ \hline 25 \end{array}$$

Ann added 15 and 10. First she added the ones, and then the tens. She said, "They will get here January 25." Count on the calendar. See if Ann was right.

Try these problems.

1. When is Ann's birthday? She said it would be in 17 days. Today is March 12.
2. When shall we get our new car? The man said it would take 21 days. Today is May 10.

## Collecting Things

ADDING TENS

Ann collected post cards. She kept them in packs, 10 cards to a pack. One week she collected 50 cards, or 5 packs, and the next week 70 cards, or 7 packs. How many cards did she collect in the two weeks?

To find out, try counting the cards in the pictures by tens. What is your answer?

Another way to find out is by adding. You can add the packs of cards by tens, or you can add the single cards. Think of 50 and 70 as two-place numbers. Do both answers show the number of cards Ann had collected? Which way is quicker? Which way do you like better?

1. Count by tens to 200.

2. 10 tens = 100      11 tens =   ?        12 tens =   ?    
13 tens =   ?        14 tens =   ?        15 tens =   ?  

Copy and add. Write each answer with the word *tens*. Then write the answer without using the word.

3. 5 tens      9 tens      8 tens      4 tens      2 tens  
6 tens      4 tens      6 tens      7 tens      8 tens

Copy each example. Add the ones, then the tens.

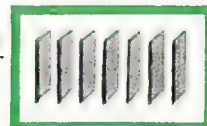
4. 50    30    90    70    80    40    20    80    90  
60    70    40    70    60    70    80    30    20

Solve this problem.

5. Bob collected 60 stamps on Thursday and 70 stamps on Friday. How many stamps in all did he collect?



5 packs, or  
50 cards



7 packs, or  
70 cards

5 tens	50
+ 7 tens	+ 70
12 tens =	120

5 tens
+ 5 tens
10 tens = 100

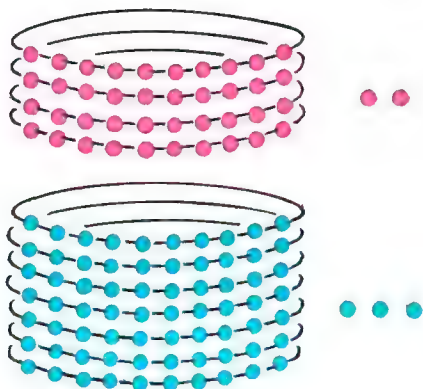


Tens

Ones

**Adding Two-Place Numbers**

SUMS TO 149



Alice and Joan counted all their beads. Alice had 42 beads. She had 4 strings of ten and 2 beads more. Joan had 73 beads. She had 7 strings of ten and 3 beads more. How many beads did the two girls have together?

Will you add or subtract? Why? You can add the number of beads by tens and ones, or you can just add 42 and 73.

$$\begin{array}{rcl}
 42 & = & 4 \text{ tens } 2 \text{ ones} \\
 +73 & = & +7 \text{ tens } 3 \text{ ones} \\
 \hline
 & & 11 \text{ tens } 5 \text{ ones}
 \end{array}
 \qquad
 \begin{array}{r}
 42 \\
 +73 \\
 \hline
 115
 \end{array}$$

11 tens 5 ones = 1 hundred 1 ten 5 ones, or 115

Are the answers the same? Which way is quicker?

Copy these examples and add down. First add the ones, then the tens. Check by adding up.

1.	$\begin{array}{r} 91 \\ 24 \\ \hline \end{array}$	$\begin{array}{r} 86 \\ 23 \\ \hline \end{array}$	$\begin{array}{r} 95 \\ 52 \\ \hline \end{array}$	$\begin{array}{r} 83 \\ 61 \\ \hline \end{array}$	$\begin{array}{r} 41 \\ 91 \\ \hline \end{array}$	$\begin{array}{r} 62 \\ 42 \\ \hline \end{array}$	$\begin{array}{r} 51 \\ 68 \\ \hline \end{array}$	$\begin{array}{r} 52 \\ 77 \\ \hline \end{array}$
----	---	---	---	---	---	---	---	---

Solve these problems.

- Jane and Ruth counted birds on the wires. They counted 54 on one wire and 60 on another wire. How many birds in all were on the two wires?
- After school each day Ann gathered the eggs and put them in the cellar to keep cool. On Monday she gathered 65 eggs. On Tuesday she gathered 73. How many was this for the two days?

## Answers of More Than One Dollar

SUMS TO \$1.49

Jack and Mary went to the store. Mary bought a game for \$.42. Jack bought a cowboy belt for \$.73. How much did they spend for both things?



Why should you add rather than subtract?

Add \$.42 and \$.73 as if there were no dollar signs or decimal points.

42 =   ?   tens   ?   ones    73 =   ?   tens   ?   ones

Add the ones first.  $2 + 3 = \underline{\quad ? \quad}$

Then add the tens.  $4 + 7 = \underline{\quad ? \quad}$

Now write the example with dollar signs and decimal points. Jack and Mary spent   ?   dollar and   ?   cents.

Copy each example and add. Add down. Remember to put a dollar sign before the answer and a decimal point between dollars and cents in the answer.

$$\begin{array}{r} 42 \\ +73 \\ \hline 115 \end{array}$$

$$\begin{array}{r} \$ .42 \\ +.73 \\ \hline \$1.15 \end{array}$$

- |   |  |  |  |  |  |
|---|--|--|--|--|--|
| 1. $\begin{array}{r} \$ .76 \\ \underline{.51} \end{array}$ | $\begin{array}{r} \$ .81 \\ \underline{.64} \end{array}$ | $\begin{array}{r} \$ .24 \\ \underline{.95} \end{array}$ | $\begin{array}{r} \$ .72 \\ \underline{.76} \end{array}$ | $\begin{array}{r} \$ .95 \\ \underline{.41} \end{array}$ | $\begin{array}{r} \$ .64 \\ \underline{.74} \end{array}$ |
| 2. $\begin{array}{r} \$ .97 \\ \underline{.42} \end{array}$ | $\begin{array}{r} \$ .63 \\ \underline{.63} \end{array}$ | $\begin{array}{r} \$ .60 \\ \underline{.80} \end{array}$ | $\begin{array}{r} \$ .43 \\ \underline{.62} \end{array}$ | $\begin{array}{r} \$ .51 \\ \underline{.53} \end{array}$ | $\begin{array}{r} \$ .53 \\ \underline{.96} \end{array}$ |

Solve each problem.

- Ruth's father gave her \$.80 for her birthday. Her brother gave her \$.45. How much was this in all?
- Bob earned \$.90 helping his father. He earned \$.32 helping his mother. How much all together did he earn helping his father and mother?



## The Big Christmas Tree

SUMS TO 149 OR \$1.49

Dick saw a great big Christmas tree in the park. A man told him there were 53 red lights on it, 20 yellow lights, and 76 blue lights. How many lights in all did this make on the tree?

Should you add to find the answer, or should you subtract? Why?

$$\begin{array}{r} 53 \\ 20 \\ 76 \\ \hline 149 \end{array}$$

Study the example. Say each missing number.

First add the ones. See 3, 0, and 6.

Think 3, 3, 9. Write   ?   in ones place.

Then add the tens. See 5, 2, and 7.

Think 5, 7, 14. 14 tens are   ?   hundred   ?   tens.

Write   ?   in hundreds place and   ?   in tens place.

There were   ?   lights in all on the tree.

Solve each problem.

1. The tree had 24 silver bells, 41 gold bells, and 63 red bells. How many bells in all were on the tree?
2. Sue's mother bought fruit for the Christmas pudding. She spent \$.43 for dates, \$.42 for figs, and \$.34 for raisins. How much was this in all?

Copy each example and add down. Check by going over your work again.

3.	24	86	63	61	40	\$.41	\$.85	\$.32
	61	11	24	30	16	.23	.10	.50
	<u>32</u>	<u>22</u>	<u>21</u>	<u>18</u>	<u>91</u>	<u>.85</u>	<u>.20</u>	<u>.63</u>

## Subtracting from More Than Nine Tens

MINUENDS TO 140

Bob and Dick played tenpins. Bob made a score of 120 points. Dick made a score of 90 points. Dick's score was how much less than Bob's?

Would you add or subtract? Why?  
You can subtract in two ways, like this:

$$\begin{array}{r} 120 = 12 \text{ tens} \\ -90 = -9 \text{ tens} \\ \hline 3 \text{ tens} = 30 \end{array} \qquad \begin{array}{r} 120 \\ -90 \\ \hline 30 \end{array}$$

Do both answers show the same number? Why?

Tell the missing numbers.

- $13 \text{ tens} - 8 \text{ tens} = \underline{\quad ? \quad} \text{ tens}$        $130 - 80 = \underline{\quad ? \quad}$   
 $14 \text{ tens} - 6 \text{ tens} = \underline{\quad ? \quad} \text{ tens}$        $140 - 60 = \underline{\quad ? \quad}$

Copy each example and subtract. Write each answer with and without the word *tens*.

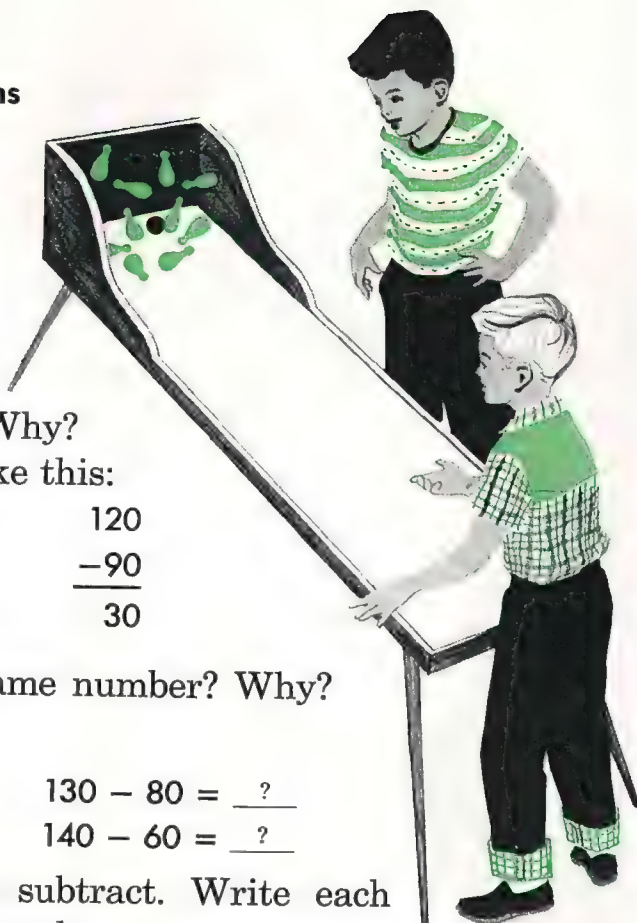
- |                              |                              |                              |                              |                              |
|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| $11 \text{ tens}$            | $10 \text{ tens}$            | $13 \text{ tens}$            | $14 \text{ tens}$            | $11 \text{ tens}$            |
| $\underline{5 \text{ tens}}$ | $\underline{5 \text{ tens}}$ | $\underline{9 \text{ tens}}$ | $\underline{8 \text{ tens}}$ | $\underline{4 \text{ tens}}$ |

Copy each example. Subtract the ones, then the tens. Check each answer by adding.

- |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|
| $\begin{array}{r} 120 \\ \underline{60} \end{array}$ | $\begin{array}{r} 140 \\ \underline{70} \end{array}$ | $\begin{array}{r} 130 \\ \underline{50} \end{array}$ | $\begin{array}{r} 120 \\ \underline{90} \end{array}$ | $\begin{array}{r} 110 \\ \underline{70} \end{array}$ | $\begin{array}{r} 110 \\ \underline{80} \end{array}$ | $\begin{array}{r} 100 \\ \underline{90} \end{array}$ | $\begin{array}{r} 100 \\ \underline{30} \end{array}$ | $\begin{array}{r} 110 \\ \underline{20} \end{array}$ |
|--|--|--|--|--|--|--|--|--|

Solve this problem.

- Tom lives 90 miles from a big city and Bob 140 miles from it. How many miles nearer to the big city does Tom live than Bob?





## Subtracting from Three-Place Numbers

MINUENDS TO 149

There are 115 children in the second and third grades of Bob's school. One day 73 of these children went on a trip to the zoo. How many children were left to go another day?

Would you add or subtract to answer the question?

You can solve this problem in two ways. Tell what should be in the blanks.

$$\begin{array}{r}
 115 = \quad ? \text{ tens } \quad ? \text{ ones} \\
 -73 = - \quad ? \text{ tens } \quad ? \text{ ones} \\
 \hline
 \quad ? \text{ tens } \quad ? \text{ ones} = \quad ?
 \end{array}
 \qquad
 \begin{array}{r}
 115 \\
 -73 \\
 \hline
 \quad ?
 \end{array}$$

Do both answers show the same number? Why?

  ?   children were left to go to the zoo another day.

Copy each example. Subtract the ones. Then subtract the tens. Check the answer by adding.

- |    |  |  |  |  |  |  |  |
|----|--|--|--|--|--|--|--|
| 1. | $\begin{array}{r} 109 \\ 96 \\ \hline \end{array}$ | $\begin{array}{r} 118 \\ 75 \\ \hline \end{array}$ | $\begin{array}{r} 137 \\ 83 \\ \hline \end{array}$ | $\begin{array}{r} 105 \\ 23 \\ \hline \end{array}$ | $\begin{array}{r} 124 \\ 92 \\ \hline \end{array}$ | $\begin{array}{r} 119 \\ 87 \\ \hline \end{array}$ | $\begin{array}{r} 136 \\ 73 \\ \hline \end{array}$ |
| 2. | $\begin{array}{r} 107 \\ 15 \\ \hline \end{array}$ | $\begin{array}{r} 128 \\ 43 \\ \hline \end{array}$ | $\begin{array}{r} 146 \\ 95 \\ \hline \end{array}$ | $\begin{array}{r} 115 \\ 62 \\ \hline \end{array}$ | $\begin{array}{r} 107 \\ 46 \\ \hline \end{array}$ | $\begin{array}{r} 139 \\ 45 \\ \hline \end{array}$ | $\begin{array}{r} 143 \\ 70 \\ \hline \end{array}$ |
| 3. | $\begin{array}{r} 128 \\ 84 \\ \hline \end{array}$ | $\begin{array}{r} 106 \\ 72 \\ \hline \end{array}$ | $\begin{array}{r} 137 \\ 94 \\ \hline \end{array}$ | $\begin{array}{r} 119 \\ 38 \\ \hline \end{array}$ | $\begin{array}{r} 148 \\ 86 \\ \hline \end{array}$ | $\begin{array}{r} 125 \\ 75 \\ \hline \end{array}$ | $\begin{array}{r} 130 \\ 50 \\ \hline \end{array}$ |

## Subtracting Money

MINUENDS TO \$1.49

Jane had \$1.46 when she went to the pet shop. She spent \$.52 for a leash for her puppy. How much money did she have left?

Would you add or subtract to answer the question in the problem? Why?

Subtract \$.52 from \$1.46 as if there were no dollar signs or decimal points.

Subtract the ones first.  $6 - 2 = \underline{\quad ? \quad}$

Then subtract the tens.  $14 - 5 = \underline{\quad ? \quad}$

Now write the example with dollar signs and decimal points.

Jane had  $\underline{\quad ? \quad}$  cents left.

Solve these problems. Tell why you subtract.

1. Joe made \$1.35 selling papers last Saturday. The Saturday before he made only \$.90. How much more did he make last Saturday than the Saturday before?
2. Sue paid \$1.29 for a scarf. Jane paid \$.85 for a scarf almost like it. Jane paid how much less than Sue for her scarf?

Copy each example and subtract. Check by adding. Remember the dollar sign for each answer. Keep decimal points in line.

$$\begin{array}{r} 3. \quad \$1.27 \\ \quad \underline{.53} \end{array}$$

$$\begin{array}{r} \$1.48 \\ \quad \underline{.62} \end{array}$$

$$\begin{array}{r} \$1.34 \\ \quad \underline{.70} \end{array}$$

$$\begin{array}{r} \$1.49 \\ \quad \underline{.84} \end{array}$$

$$\begin{array}{r} \$1.47 \\ \quad \underline{.97} \end{array}$$



$$\begin{array}{r} 146 \\ -52 \\ \hline 94 \end{array}$$

$$\begin{array}{r} \$1.46 \\ -.52 \\ \hline \$ .94 \end{array}$$

## Practice to Remember

Copy each example and write the answer.

$$1. \begin{array}{r} 9 \\ +5 \\ \hline \end{array} \begin{array}{r} 5 \\ +7 \\ \hline \end{array} \begin{array}{r} 2 \\ +9 \\ \hline \end{array} \begin{array}{r} 8 \\ +5 \\ \hline \end{array} \begin{array}{r} 6 \\ +8 \\ \hline \end{array} \begin{array}{r} 9 \\ +3 \\ \hline \end{array} \begin{array}{r} 4 \\ +7 \\ \hline \end{array} \begin{array}{r} 9 \\ +4 \\ \hline \end{array} \begin{array}{r} 6 \\ +6 \\ \hline \end{array} \begin{array}{r} 5 \\ +9 \\ \hline \end{array}$$

$$2. \begin{array}{r} 7 \\ +7 \\ \hline \end{array} \begin{array}{r} 5 \\ +8 \\ \hline \end{array} \begin{array}{r} 8 \\ +3 \\ \hline \end{array} \begin{array}{r} 5 \\ +6 \\ \hline \end{array} \begin{array}{r} 6 \\ +7 \\ \hline \end{array} \begin{array}{r} 9 \\ +2 \\ \hline \end{array} \begin{array}{r} 8 \\ +6 \\ \hline \end{array} \begin{array}{r} 7 \\ +5 \\ \hline \end{array} \begin{array}{r} 4 \\ +9 \\ \hline \end{array} \begin{array}{r} 4 \\ +8 \\ \hline \end{array}$$

$$3. \begin{array}{r} 70 \\ +40 \\ \hline \end{array} \begin{array}{r} 30 \\ +92 \\ \hline \end{array} \begin{array}{r} 78 \\ +60 \\ \hline \end{array} \begin{array}{r} 82 \\ +46 \\ \hline \end{array} \begin{array}{r} 35 \\ +84 \\ \hline \end{array} \begin{array}{r} 61 \\ +56 \\ \hline \end{array} \begin{array}{r} 35 \\ +72 \\ \hline \end{array}$$

$$4. \begin{array}{r} 11 \\ -9 \\ \hline \end{array} \begin{array}{r} 12 \\ -3 \\ \hline \end{array} \begin{array}{r} 12 \\ -6 \\ \hline \end{array} \begin{array}{r} 14 \\ -5 \\ \hline \end{array} \begin{array}{r} 12 \\ -7 \\ \hline \end{array} \begin{array}{r} 14 \\ -9 \\ \hline \end{array} \begin{array}{r} 13 \\ -4 \\ \hline \end{array} \begin{array}{r} 14 \\ -8 \\ \hline \end{array} \begin{array}{r} 11 \\ -7 \\ \hline \end{array} \begin{array}{r} 13 \\ -5 \\ \hline \end{array}$$

$$5. \begin{array}{r} 13 \\ -8 \\ \hline \end{array} \begin{array}{r} 11 \\ -6 \\ \hline \end{array} \begin{array}{r} 14 \\ -6 \\ \hline \end{array} \begin{array}{r} 13 \\ -7 \\ \hline \end{array} \begin{array}{r} 11 \\ -2 \\ \hline \end{array} \begin{array}{r} 12 \\ -5 \\ \hline \end{array} \begin{array}{r} 12 \\ -8 \\ \hline \end{array} \begin{array}{r} 13 \\ -9 \\ \hline \end{array} \begin{array}{r} 14 \\ -7 \\ \hline \end{array} \begin{array}{r} 11 \\ -3 \\ \hline \end{array}$$

$$6. \begin{array}{r} 138 \\ -60 \\ \hline \end{array} \begin{array}{r} 119 \\ -84 \\ \hline \end{array} \begin{array}{r} 107 \\ -72 \\ \hline \end{array} \begin{array}{r} 122 \\ -92 \\ \hline \end{array} \begin{array}{r} 128 \\ -46 \\ \hline \end{array} \begin{array}{r} 110 \\ -40 \\ \hline \end{array} \begin{array}{r} 117 \\ -56 \\ \hline \end{array}$$

$$7. \begin{array}{r} 11 \\ 31 \\ +71 \\ \hline \end{array} \begin{array}{r} 21 \\ 72 \\ +43 \\ \hline \end{array} \begin{array}{r} 33 \\ 53 \\ +41 \\ \hline \end{array} \begin{array}{r} 12 \\ 43 \\ +94 \\ \hline \end{array} \begin{array}{r} \$ .31 \\ .45 \\ +.72 \\ \hline \end{array} \begin{array}{r} \$ .25 \\ .40 \\ +.52 \\ \hline \end{array} \begin{array}{r} \$ .40 \\ .40 \\ +.50 \\ \hline \end{array}$$

$$8. \begin{array}{r} 127 \\ -41 \\ \hline \end{array} \begin{array}{r} 148 \\ -72 \\ \hline \end{array} \begin{array}{r} 130 \\ -50 \\ \hline \end{array} \begin{array}{r} 117 \\ -52 \\ \hline \end{array} \begin{array}{r} \$1.36 \\ -.43 \\ \hline \end{array} \begin{array}{r} \$1.49 \\ -.94 \\ \hline \end{array} \begin{array}{r} \$1.13 \\ -.71 \\ \hline \end{array}$$

Solve these problems.

9. Bob wants a toy truck that costs \$1.40. He has only \$.80. How much more money does he need?
10. Ted earned \$.40 on Monday, \$.40 on Tuesday, and \$.40 on Wednesday. How much did he earn in all?

## Finding What You Need to Study Again

If you need to study something again, the page numbers at the side tell you where to look.

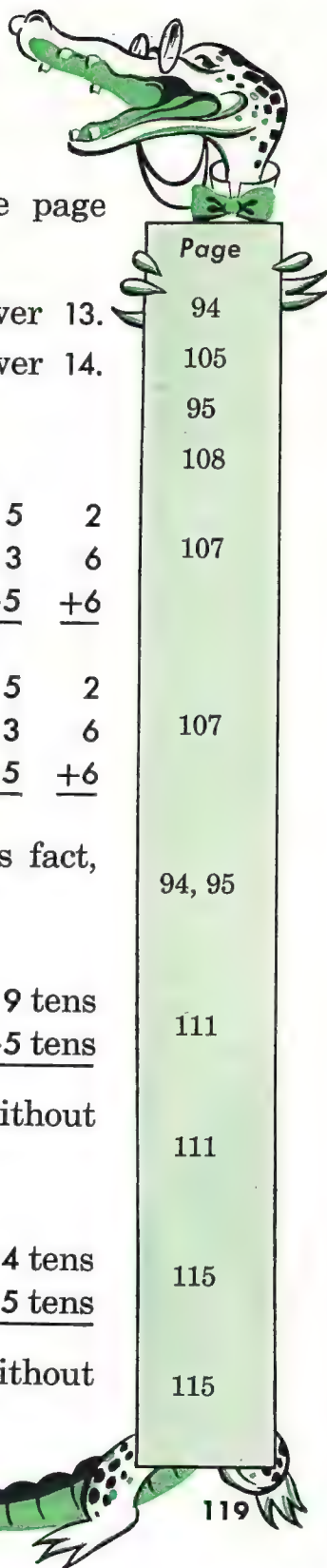
1. Write six addition facts, each with the answer 13.
2. Write five addition facts, each with the answer 14.
3. Write six facts about subtracting from 13.
4. Write five facts about subtracting from 14.
5. Write just the first addition fact you would use in doing each of the four examples at the side.
 

1	4	5	2
8	2	3	6
<u>+4</u>	<u>+8</u>	<u>+5</u>	<u>+6</u>
6. Write just the second addition fact you would use in doing each of the four examples at the side.
 

1	4	5	2
8	2	3	6
<u>+4</u>	<u>+8</u>	<u>+5</u>	<u>+6</u>
7. Write the three other facts that go with this fact,  $8 + 5 = 13$ , to make a fact family.  
Write each sum, using the word *tens*.
8.
 

6 tens	8 tens	5 tens	9 tens
<u>+7 tens</u>	<u>+6 tens</u>	<u>+8 tens</u>	<u>+5 tens</u>
9. Write the answers for the examples in row 8 without using the word *tens*.
10. Write each answer, using the word *tens*.
 

13 tens	14 tens	13 tens	14 tens
<u>-4 tens</u>	<u>-7 tens</u>	<u>-9 tens</u>	<u>-5 tens</u>
11. Write the answers for the examples in row 10 without using the word *tens*.



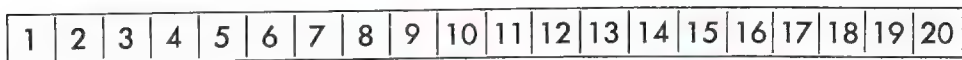


## Another Way to Use Number Strips

ADDITION FACTS OF 15

The number strips below will help you to learn some new addition facts.

You know that fifteen means five and ten, or ten and five. See the picture of  $10 + 5$ , or 15.



A. 

1	2	3	4	5	6	7	8	9	10	1	2	3	4	5
---	---	---	---	---	---	---	---	---	----	---	---	---	---	---

 $10 + 5 = 15$

B. 

1	2	3	4	5	6	7	8	9	1	2	3	4	5	6
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

 $9 + 6 = \underline{\quad ? \quad}$

C. 

1	2	3	4	5	6	1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

 $6 + 9 = \underline{\quad ? \quad}$

1. Compare the number strips in rows B and C with those in row A. Do you see that  $9 + 6$  and  $6 + 9$  make the same number as  $10 + 5$ , or 15?

D. 

1	2	3	4	5	6	7	8	1	2	3	4	5	6	7
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

 $8 + 7 = \underline{\quad ? \quad}$

E. 

1	2	3	4	5	6	7	1	2	3	4	5	6	7	8
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

 $7 + 8 = \underline{\quad ? \quad}$

2. Compare rows D and E with row A. Do you see that  $8 + 7$  and  $7 + 8$  also make the same number as  $10 + 5$ , or 15?

3. Copy the example shown beside each row of number strips. Write the missing number.



Study and learn these new addition facts. Practice saying and writing them until you feel sure you can remember them.

$\begin{array}{r} 7 \\ +8 \\ \hline \end{array}$	$\begin{array}{r} 10 \\ +5 \\ \hline 15 \end{array}$	$\begin{array}{r} 9 \\ +6 \\ \hline 15 \end{array}$	$\begin{array}{r} 8 \\ +7 \\ \hline 15 \end{array}$	$\begin{array}{r} 7 \\ +8 \\ \hline 15 \end{array}$	$\begin{array}{r} 6 \\ +9 \\ \hline 15 \end{array}$	$\begin{array}{r} 5 \\ +10 \\ \hline 15 \end{array}$
--	--	---	---	---	---	--



# The Postman

TO SUMS OF 15

Solve these problems. After you read each problem, think why you should add.

1. Ted watched the postman. He stopped at 9 houses on one side of the street and at 6 houses on the other side. At how many houses in all did he stop on that street?
2. The postman left 7 letters for Ted's family and 6 letters for the family upstairs. How many letters did he leave all together?
3. The next day the postman left 8 Christmas cards for Ted and 7 cards for his sister. How many cards in all were there?
4. The postman stopped at Ted's house 5 times last week and 6 times the week before last. How many times did he stop there in the two weeks?
5. Ted gave the postman 6 cards to mail. The family upstairs gave him 9 cards. How many cards did the postman take from the house where Ted lived?

## Practice to Remember

Copy each example, add, and write the answer.

1. 
$$\begin{array}{r} 3 \\ 7 \end{array} \quad \begin{array}{r} 2 \\ 9 \end{array} \quad \begin{array}{r} 8 \\ 7 \end{array} \quad \begin{array}{r} 6 \\ 9 \end{array} \quad \begin{array}{r} 6 \\ 6 \end{array} \quad \begin{array}{r} 4 \\ 6 \end{array} \quad \begin{array}{r} 9 \\ 3 \end{array} \quad \begin{array}{r} 7 \\ 8 \end{array} \quad \begin{array}{r} 8 \\ 5 \end{array} \quad \begin{array}{r} 7 \\ 5 \end{array}$$
2. 
$$\begin{array}{r} 8 \\ 6 \end{array} \quad \begin{array}{r} 5 \\ 8 \end{array} \quad \begin{array}{r} 7 \\ 4 \end{array} \quad \begin{array}{r} 2 \\ 8 \end{array} \quad \begin{array}{r} 7 \\ 6 \end{array} \quad \begin{array}{r} 3 \\ 9 \end{array} \quad \begin{array}{r} 9 \\ 6 \end{array} \quad \begin{array}{r} 7 \\ 3 \end{array} \quad \begin{array}{r} 8 \\ 3 \end{array} \quad \begin{array}{r} 4 \\ 9 \end{array}$$
3. 
$$\begin{array}{r} 6 \\ 8 \end{array} \quad \begin{array}{r} 4 \\ 7 \end{array} \quad \begin{array}{r} 9 \\ 4 \end{array} \quad \begin{array}{r} 3 \\ 8 \end{array} \quad \begin{array}{r} 8 \\ 4 \end{array} \quad \begin{array}{r} 8 \\ 2 \end{array} \quad \begin{array}{r} 5 \\ 6 \end{array} \quad \begin{array}{r} 6 \\ 7 \end{array} \quad \begin{array}{r} 6 \\ 4 \end{array} \quad \begin{array}{r} 9 \\ 5 \end{array}$$

## Subtracting from Fifteen

You can learn some new subtraction facts by studying these number strips.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A.	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5					
B.	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6					
C.	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7					

- Look at row A. Think of subtracting the 5-strip. What strip will be left? Think of subtracting the 10-strip instead of the 5-strip. What strip will be left then?

Copy these examples and write the answers. Study the number strips if you need help.

- $15 - 5 =$        $15 - 10 =$        $15 - 9 =$        $15 - 6 =$
- $15 - 8 =$        $15 - 7 =$

Practice saying and writing the subtraction facts below until you feel sure you can remember them.

$$\begin{array}{r} 15 \\ -5 \\ \hline 10 \end{array}$$

$$\begin{array}{r} 15 \\ -6 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 15 \\ -7 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 15 \\ -9 \\ \hline 6 \end{array}$$

$$\begin{array}{r} 15 \\ -10 \\ \hline 5 \end{array}$$

## Writing Fact Families

Here is the fact family of 14, 9, 5.

$$9 + 5 = 14 \quad 5 + 9 = 14 \quad 14 - 5 = 9 \quad 14 - 9 = 5$$

- Write the fact family for each of the following:  
14, 8, 6      14, 7, 7      15, 9, 6      15, 8, 7
- Write five fact families about 12.
- Write four fact families about 13.

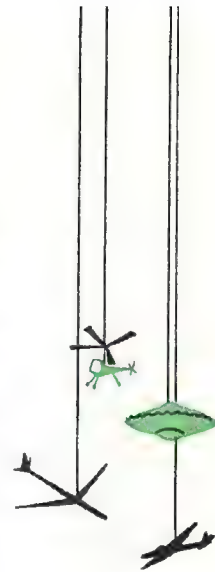
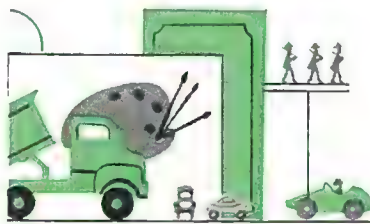
## Each Fact Helps with Other Facts

Copy the examples and write the answers.

- How does the fact  $6 + 6 = 12$  help you with these examples?  $6 + 7 = \underline{\quad ? \quad}$   $6 + 5 = \underline{\quad ? \quad}$
- Tell how the fact  $9 + 2 = 11$  helps you with these examples:  $2 + 9 = \underline{\quad ? \quad}$   $11 - 2 = \underline{\quad ? \quad}$   $11 - 9 = \underline{\quad ? \quad}$
- Tell how the fact  $14 - 6 = 8$  helps you with these examples:  $14 - 8 = \underline{\quad ? \quad}$   $8 + 6 = \underline{\quad ? \quad}$   $6 + 8 = \underline{\quad ? \quad}$

Tell how each fact below helps with the example beside it. Copy the example and write the answer.

- |                  |                                      |
|------------------|--------------------------------------|
| 4. $7 + 7 = 14$  | $7 + 8 = \underline{\quad ? \quad}$  |
| 5. $14 - 10 = 4$ | $14 - 9 = \underline{\quad ? \quad}$ |
| 6. $5 + 5 = 10$  | $5 + 6 = \underline{\quad ? \quad}$  |
| 7. $15 - 10 = 5$ | $15 - 9 = \underline{\quad ? \quad}$ |
| 8. $15 - 8 = 7$  | $15 - 7 = \underline{\quad ? \quad}$ |
| 9. $6 + 9 = 15$  | $9 + 6 = \underline{\quad ? \quad}$  |

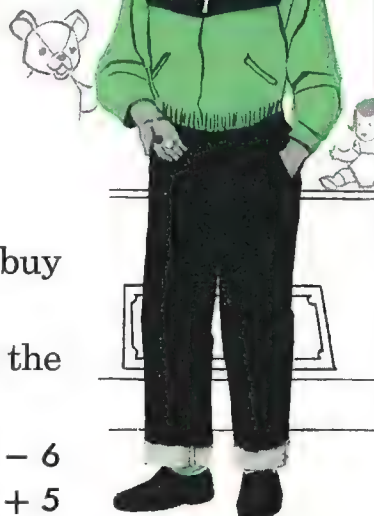


In each problem below, the right answer to each question should help with the next. Write just the answers.

- Sue has 15¢. How much money will she have left if she buys a toy for 6¢? for 7¢? 8¢? 9¢?
- Bob has 6¢. How much more does he need to buy a toy costing 12¢? 13¢? 14¢? 15¢?

Copy the examples in each row and write the answers.

- |  |  |  |
|--|--|--|
| 12. $8 + 7$ , $8 + 6$                                | $15 - 7$ , $15 - 8$                              | $9 + 6$ , $15 - 6$                               |
| 13. $10 + 1$   | $10 + 2$   | $10 + 3$   |
| 14. $9 + 1$  | $9 + 2$  | $9 + 3$  |
| 15. $\begin{array}{r} 8 \\ +2 \\ \hline \end{array}$ | $\begin{array}{r} 8 \\ +3 \\ \hline \end{array}$ | $\begin{array}{r} 8 \\ +4 \\ \hline \end{array}$ |
|  | $\begin{array}{r} 8 \\ +5 \\ \hline \end{array}$ | $\begin{array}{r} 8 \\ +6 \\ \hline \end{array}$ |
|  |  | $\begin{array}{r} 8 \\ +7 \\ \hline \end{array}$ |







## Finding the Date

Suppose that the *date* today is December 15. Let's make a subtraction game about things that happened

on dates that are past. Here are some questions about things that might have happened.

Cover the calendar while you write the answers. Then count on the calendar and see if your answers are right. Think of today as December 15.

1. Seven days ago was Wednesday. What was the date?
2. Six days ago we went to the show. What was the date?
3. Ten days ago we went to church. What was the date?
4. Eight days ago it rained. What was the date?
5. Nine days ago was a wash day. What was the date?
6. Five days ago we had a party. What was the date?

## Practice to Remember

Copy and subtract. Check by adding.

1.  $\begin{array}{r} 10 \\ -7 \\ \hline \end{array}$   $\begin{array}{r} 11 \\ -9 \\ \hline \end{array}$   $\begin{array}{r} 15 \\ -7 \\ \hline \end{array}$   $\begin{array}{r} 15 \\ -9 \\ \hline \end{array}$   $\begin{array}{r} 12 \\ -6 \\ \hline \end{array}$   $\begin{array}{r} 10 \\ -6 \\ \hline \end{array}$   $\begin{array}{r} 15 \\ -8 \\ \hline \end{array}$   $\begin{array}{r} 10 \\ -5 \\ \hline \end{array}$   $\begin{array}{r} 12 \\ -5 \\ \hline \end{array}$
2.  $\begin{array}{r} 14 \\ -6 \\ \hline \end{array}$   $\begin{array}{r} 12 \\ -8 \\ \hline \end{array}$   $\begin{array}{r} 11 \\ -4 \\ \hline \end{array}$   $\begin{array}{r} 10 \\ -8 \\ \hline \end{array}$   $\begin{array}{r} 13 \\ -6 \\ \hline \end{array}$   $\begin{array}{r} 12 \\ -9 \\ \hline \end{array}$   $\begin{array}{r} 15 \\ -6 \\ \hline \end{array}$   $\begin{array}{r} 11 \\ -3 \\ \hline \end{array}$   $\begin{array}{r} 13 \\ -9 \\ \hline \end{array}$
3.  $\begin{array}{r} 14 \\ -8 \\ \hline \end{array}$   $\begin{array}{r} 11 \\ -7 \\ \hline \end{array}$   $\begin{array}{r} 13 \\ -4 \\ \hline \end{array}$   $\begin{array}{r} 11 \\ -8 \\ \hline \end{array}$   $\begin{array}{r} 12 \\ -4 \\ \hline \end{array}$   $\begin{array}{r} 11 \\ -6 \\ \hline \end{array}$   $\begin{array}{r} 13 \\ -7 \\ \hline \end{array}$   $\begin{array}{r} 10 \\ -4 \\ \hline \end{array}$   $\begin{array}{r} 11 \\ -2 \\ \hline \end{array}$
4.  $\begin{array}{r} 11 \\ -5 \\ \hline \end{array}$   $\begin{array}{r} 13 \\ -5 \\ \hline \end{array}$   $\begin{array}{r} 14 \\ -5 \\ \hline \end{array}$   $\begin{array}{r} 12 \\ -7 \\ \hline \end{array}$   $\begin{array}{r} 14 \\ -7 \\ \hline \end{array}$   $\begin{array}{r} 13 \\ -8 \\ \hline \end{array}$   $\begin{array}{r} 9 \\ -6 \\ \hline \end{array}$   $\begin{array}{r} 10 \\ -9 \\ \hline \end{array}$   $\begin{array}{r} 14 \\ -9 \\ \hline \end{array}$

+

-

+

-

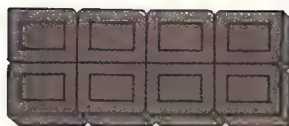
+

-

+

## Ounces and Pounds

ADDITION FACTS OF 16



1. Jane and Ruth each had a cake of chocolate marked into 8 squares. Each square weighed 1 *ounce*. Each cake of chocolate weighed   ?   ounces.
2. How many squares are in both cakes of chocolate? Copy this example and write the answer:  $8 + 8 = \underline{\quad ? \quad}$

Jane put the two cakes of chocolate on the kitchen scale. The scale showed 1 *pound*.

16 ounces = 1 pound

3. The girls cut the two cakes into 1-ounce squares. Ruth put 9 squares on the scale. Jane put 7 squares on the scale. The scale showed 1 pound as before. 9 ounces + 7 ounces =   ?   ounces.

Practice saying and writing these addition facts until you feel sure you can remember them.

$$\begin{array}{r} 10 \\ +6 \\ \hline 16 \end{array}$$

$$\begin{array}{r} 9 \\ +7 \\ \hline 16 \end{array}$$

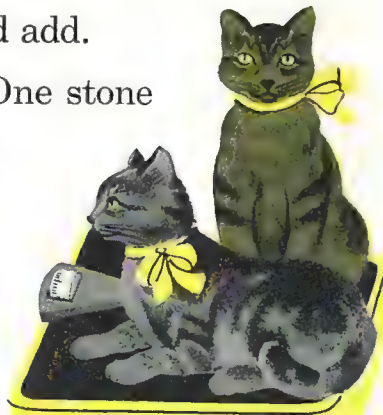
$$\begin{array}{r} 8 \\ +8 \\ \hline 16 \end{array}$$

$$\begin{array}{r} 7 \\ +9 \\ \hline 16 \end{array}$$

$$\begin{array}{r} 6 \\ +10 \\ \hline 16 \end{array}$$

Solve these problems. Think why you should add.

4. Jim weighed some stones in science class. One stone weighed 4 ounces, another weighed 5 ounces, and another weighed 7 ounces. All together the three stones weighed how many ounces?
5. Ann's cat weighed 8 pounds. Joan's cat weighed 7 pounds. What would the scale show if both cats were weighed together?





## Adding Weights

The children in the third grade had a kitchen scale. One day each child weighed two things in ounces. Find the weight of each two things together by adding.

1. 4 ounces and 8 ounces
2. 9 ounces and 7 ounces
3. 3 ounces and 9 ounces
4. 8 ounces and 5 ounces
5. 8 ounces and 8 ounces
6. 9 ounces and 6 ounces
7. 5 ounces and 9 ounces
8. 7 ounces and 8 ounces
9. Do the two weights together in the first example make 1 pound?
10. Look at each example from 2 through 8. In which examples do the weights together make 1 pound?

### Practice to Remember

Copy and add.

- |    |   |   |   |   |   |   |   |   |   |
|----|---|---|---|---|---|---|---|---|---|
| 1. | $\begin{array}{r} 4 \\ 9 \\ \hline \end{array}$ | $\begin{array}{r} 7 \\ 8 \\ \hline \end{array}$ | $\begin{array}{r} 9 \\ 1 \\ \hline \end{array}$ | $\begin{array}{r} 6 \\ 7 \\ \hline \end{array}$ | $\begin{array}{r} 9 \\ 5 \\ \hline \end{array}$ | $\begin{array}{r} 4 \\ 8 \\ \hline \end{array}$ | $\begin{array}{r} 5 \\ 6 \\ \hline \end{array}$ | $\begin{array}{r} 3 \\ 7 \\ \hline \end{array}$ | $\begin{array}{r} 6 \\ 5 \\ \hline \end{array}$ |
| 2. | $\begin{array}{r} 1 \\ 9 \\ \hline \end{array}$ | $\begin{array}{r} 9 \\ 4 \\ \hline \end{array}$ | $\begin{array}{r} 8 \\ 5 \\ \hline \end{array}$ | $\begin{array}{r} 2 \\ 9 \\ \hline \end{array}$ | $\begin{array}{r} 8 \\ 2 \\ \hline \end{array}$ | $\begin{array}{r} 6 \\ 9 \\ \hline \end{array}$ | $\begin{array}{r} 9 \\ 7 \\ \hline \end{array}$ | $\begin{array}{r} 8 \\ 3 \\ \hline \end{array}$ | $\begin{array}{r} 3 \\ 6 \\ \hline \end{array}$ |
| 3. | $\begin{array}{r} 9 \\ 2 \\ \hline \end{array}$ | $\begin{array}{r} 3 \\ 8 \\ \hline \end{array}$ | $\begin{array}{r} 9 \\ 6 \\ \hline \end{array}$ | $\begin{array}{r} 8 \\ 7 \\ \hline \end{array}$ | $\begin{array}{r} 5 \\ 5 \\ \hline \end{array}$ | $\begin{array}{r} 9 \\ 3 \\ \hline \end{array}$ | $\begin{array}{r} 7 \\ 6 \\ \hline \end{array}$ | $\begin{array}{r} 4 \\ 6 \\ \hline \end{array}$ | $\begin{array}{r} 6 \\ 8 \\ \hline \end{array}$ |
| 4. | $\begin{array}{r} 5 \\ 7 \\ \hline \end{array}$ | $\begin{array}{r} 7 \\ 7 \\ \hline \end{array}$ | $\begin{array}{r} 5 \\ 4 \\ \hline \end{array}$ | $\begin{array}{r} 7 \\ 4 \\ \hline \end{array}$ | $\begin{array}{r} 2 \\ 7 \\ \hline \end{array}$ | $\begin{array}{r} 7 \\ 3 \\ \hline \end{array}$ | $\begin{array}{r} 8 \\ 6 \\ \hline \end{array}$ | $\begin{array}{r} 7 \\ 9 \\ \hline \end{array}$ | $\begin{array}{r} 8 \\ 4 \\ \hline \end{array}$ |
| 5. | $\begin{array}{r} 8 \\ 8 \\ \hline \end{array}$ | $\begin{array}{r} 7 \\ 5 \\ \hline \end{array}$ | $\begin{array}{r} 2 \\ 8 \\ \hline \end{array}$ | $\begin{array}{r} 5 \\ 8 \\ \hline \end{array}$ | $\begin{array}{r} 3 \\ 9 \\ \hline \end{array}$ | $\begin{array}{r} 6 \\ 4 \\ \hline \end{array}$ | $\begin{array}{r} 5 \\ 9 \\ \hline \end{array}$ | $\begin{array}{r} 6 \\ 6 \\ \hline \end{array}$ | $\begin{array}{r} 4 \\ 7 \\ \hline \end{array}$ |

+

+

+

+

## Subtracting from Sixteen

- Jane and Ruth have 16 squares of chocolate. They will use 8 of the squares to make candy for a sale. How many squares will be left?

Why should you subtract? Find the row of number strips that helps you to answer the question.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----

- A. 

1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6
---	---	---	---	---	---	---	---	---	----	---	---	---	---	---	---
- B. 

1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
- C. 

1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Copy each example and write the answer. Use the number strips if you need help.

2.  $16 - 10 = \underline{\quad ? \quad}$        $16 - 6 = \underline{\quad ? \quad}$        $16 - 9 = \underline{\quad ? \quad}$   
 $16 - 7 = \underline{\quad ? \quad}$        $16 - 8 = \underline{\quad ? \quad}$

Practice saying and writing these subtraction facts until you feel sure you can remember them.

$$\begin{array}{r} 16 \\ -6 \\ \hline 10 \end{array}$$

$$\begin{array}{r} 16 \\ -7 \\ \hline 9 \end{array}$$

$$\begin{array}{r} 16 \\ -8 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 16 \\ -9 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 16 \\ -10 \\ \hline 6 \end{array}$$

Solve these problems. Why should you subtract?

- If 6 of the 16 squares of chocolate were used for candy, how many squares would be left?
- Ann has used all but 7 of her 16 squares of chocolate. How many squares has she used?
- One candy rule calls for 16 squares of chocolate. If you have 10 squares already, how many more will you need to follow this candy rule?



## Heavier or Lighter

The children in the third grade used a kitchen scale to weigh a number of things. They subtracted to compare the weights of the things.



Use subtraction to answer each of these questions.

1. A 16-ounce can is how much heavier than an 8-ounce can?
2. A 9-ounce package is how much lighter than a 16-ounce package?
3. A 16-ounce tin of salmon weighs how much more than a 10-ounce tin?
4. One full box weighs 16 ounces. A box partly full weighs 7 ounces. The second box is how many ounces lighter than the first box?

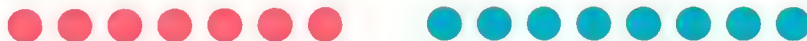
### Practice to Remember

Copy and subtract.

- |    |  |  |  |  |  |  |  |  |  |
|----|--|--|--|--|--|--|--|--|--|
| 1. | $\begin{array}{r} 13 \\ - 9 \\ \hline \end{array}$ | $\begin{array}{r} 15 \\ - 8 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ - 1 \\ \hline \end{array}$ | $\begin{array}{r} 13 \\ - 7 \\ \hline \end{array}$ | $\begin{array}{r} 14 \\ - 5 \\ \hline \end{array}$ | $\begin{array}{r} 12 \\ - 8 \\ \hline \end{array}$ | $\begin{array}{r} 11 \\ - 6 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ - 7 \\ \hline \end{array}$ | $\begin{array}{r} 11 \\ - 5 \\ \hline \end{array}$ |
| 2. | $\begin{array}{r} 10 \\ - 9 \\ \hline \end{array}$ | $\begin{array}{r} 13 \\ - 4 \\ \hline \end{array}$ | $\begin{array}{r} 13 \\ - 5 \\ \hline \end{array}$ | $\begin{array}{r} 11 \\ - 9 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ - 2 \\ \hline \end{array}$ | $\begin{array}{r} 15 \\ - 9 \\ \hline \end{array}$ | $\begin{array}{r} 16 \\ - 7 \\ \hline \end{array}$ | $\begin{array}{r} 11 \\ - 3 \\ \hline \end{array}$ | $\begin{array}{r} 9 \\ - 6 \\ \hline \end{array}$  |
| 3. | $\begin{array}{r} 11 \\ - 2 \\ \hline \end{array}$ | $\begin{array}{r} 11 \\ - 8 \\ \hline \end{array}$ | $\begin{array}{r} 15 \\ - 6 \\ \hline \end{array}$ | $\begin{array}{r} 15 \\ - 7 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ - 5 \\ \hline \end{array}$ | $\begin{array}{r} 12 \\ - 3 \\ \hline \end{array}$ | $\begin{array}{r} 13 \\ - 6 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ - 6 \\ \hline \end{array}$ | $\begin{array}{r} 14 \\ - 8 \\ \hline \end{array}$ |
| 4. | $\begin{array}{r} 12 \\ - 7 \\ \hline \end{array}$ | $\begin{array}{r} 14 \\ - 7 \\ \hline \end{array}$ | $\begin{array}{r} 9 \\ - 4 \\ \hline \end{array}$  | $\begin{array}{r} 11 \\ - 4 \\ \hline \end{array}$ | $\begin{array}{r} 9 \\ - 7 \\ \hline \end{array}$  | $\begin{array}{r} 10 \\ - 3 \\ \hline \end{array}$ | $\begin{array}{r} 14 \\ - 6 \\ \hline \end{array}$ | $\begin{array}{r} 16 \\ - 9 \\ \hline \end{array}$ | $\begin{array}{r} 12 \\ - 4 \\ \hline \end{array}$ |
| 5. | $\begin{array}{r} 16 \\ - 8 \\ \hline \end{array}$ | $\begin{array}{r} 12 \\ - 5 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ - 8 \\ \hline \end{array}$ | $\begin{array}{r} 13 \\ - 8 \\ \hline \end{array}$ | $\begin{array}{r} 12 \\ - 9 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ - 4 \\ \hline \end{array}$ | $\begin{array}{r} 14 \\ - 9 \\ \hline \end{array}$ | $\begin{array}{r} 12 \\ - 6 \\ \hline \end{array}$ | $\begin{array}{r} 11 \\ - 7 \\ \hline \end{array}$ |

## Learning Facts in Families

Here are 7 circles and 8 circles.



Find by counting that 7 and 8 are 15; that 8 and 7 are 15. Now show by covering circles that  $15 - 7 = 8$ ; that  $15 - 8 = 7$ .

Write two addition facts and two subtraction facts with each of these groups of three numbers.

- |              |           |           |           |
|--------------|-----------|-----------|-----------|
| 1. 9, 2, 11  | 5, 7, 12  | 9, 4, 13  | 10, 6, 16 |
| 2. 8, 3, 11  | 3, 9, 12  | 8, 5, 13  | 8, 6, 14  |
| 3. 7, 4, 11  | 8, 4, 12  | 7, 6, 13  | 7, 9, 16  |
| 4. 10, 1, 11 | 10, 2, 12 | 10, 3, 13 | 10, 4, 14 |

Write 1 addition fact and 1 subtraction fact with each of these groups of numbers.

5. 5, 5, 10      6, 6, 12      7, 7, 14      8, 8, 16

6. Why does the 5, 5, 10 family have only two facts, while the 5, 6, 11 family has four facts?

7. Add 1 to each number in the row below. Then add 2. Add 3. Add 4. Add 5. Add 6. Add 7.

0    1    2    3    4    5    6    7    8    9    10

8. Subtract from 16 each of these numbers:

6          7          8          9          10

9. Subtract from 15 each of these numbers:

5          6          7          8          9          10

10. Subtract from 14 each of these numbers:

4          5          6          7          8          9          10



## A Valentine Party

SUMS TO 169 OR \$1.69

The third grade played a valentine game. They hunted for candy hearts. Tony and Joan put most of their candy hearts in stacks of 10 each, to make counting easier.

Tony said, "I found 93 hearts." Look at the picture. Was he right?

Joan said, "I found 76 hearts." Was she right?

How many hearts did Tony and Joan find together? Tell why you add to find the answer. You can add by tens and ones, or you can add 93 and 76.

$$\begin{array}{r}
 93 = 9 \text{ tens } 3 \text{ ones} \\
 +76 = +7 \text{ tens } 6 \text{ ones} \\
 \hline
 16 \text{ tens } 9 \text{ ones}
 \end{array}
 \qquad
 \begin{array}{r}
 93 \\
 +76 \\
 \hline
 169
 \end{array}$$

16 tens 9 ones = 1 hundred 6 tens 9 ones, or 169

Are the answers the same? Which way is quicker?

Solve these problems.

- The girls in the third grade got 86 valentines. The boys got 72. How many valentines did the children in the third grade get in all?
- The children spent \$.63 for candy hearts and \$.95 for cakes. How much did they spend in all?

Copy each example and add.

- |           |           |           |           |           |           |           |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 64        | 88        | 75        | 85        | 76        | 82        | 92        |
| <u>81</u> | <u>60</u> | <u>94</u> | <u>83</u> | <u>73</u> | <u>77</u> | <u>57</u> |
- |            |            |            |            |            |            |
|------------|------------|------------|------------|------------|------------|
| \$ .59     | \$ .92     | \$ .93     | \$ .67     | \$ .81     | \$ .60     |
| <u>.90</u> | <u>.76</u> | <u>.64</u> | <u>.72</u> | <u>.50</u> | <u>.86</u> |

## Collecting Tickets

DOUBLE-COLUMN ADDITION—SUMS TO 169

Tens

Ones



Dick's Tickets

The Cub Scouts had a dinner on Father-and-Son Night. Dick, Bob, and Jack collected the dinner tickets.



Bob's Tickets

Dick collected 42, Bob 50, and Jack 54. They put the tickets in bundles of 10.



Jack's Tickets

Look at the picture and check the number of tickets each boy collected by counting the tickets shown.

How many tickets did the boys collect in all?  
How do you know that you must add to answer this question?

Study the example. Say the missing numbers.

First add the ones. See 2, 0, and 4. Think 2, 2, ? Write ?

Then add the tens. See 4, 5, and 5. Think 4, 9, ? Write ?

The boys collected ? tickets.

42
50
54
146

Solve each problem. Will you add? Why?

- Ann collected paper dolls. She had 54 dolls. Her aunt gave her 32 more. Her friends gave her 73 more. How many dolls did Ann have then?
- Ted collected small picture cards. He got 54 cards in September, 41 in October, and 63 in November. How many cards did he have then?
- Sue collected buttons. In one box she had 40, in another 44, and in another 85. How many buttons in all did Sue have in the boxes?





## Adding on a Machine

SUMS TO \$1.69

Dick and Ruth went shopping with Mother. They bought fruit for 25¢, butter for 70¢, and eggs for 63¢. The clerk used a machine to add. He gave Ruth the paper slip from the machine.

Look at the picture of the paper slip.

The machine is built to write a dollar sign with each number. It also writes a zero when there are no dollars. When *you* add, you write the dollar sign before just the *first* number in the column and the *answer*. You do not need to write the zero to show no dollars.

The machine puts a star before the answer, which is called the *total*. When *you* add, you draw a line under the numbers to be added and then write the answer under the line.

1. Does  $25¢ + 70¢ + 63¢ = 158$  cents?
2. Does  $158¢ = 100¢ + 58¢$ ?
3. Is 100¢ worth \$1?
4. Is the total, \$1.58, correct?

Copy these examples and add. Keep the decimal points in line. Keep each column of figures in line.

5.	\$ .63	\$ .31	\$ .73	\$ .80	\$ .51	\$ .92
	.21	.23	.20	.10	.21	.05
	<u>.64</u>	<u>.92</u>	<u>.63</u>	<u>.36</u>	<u>.30</u>	<u>.61</u>

\$0.25  
\$0.70  
\$0.63

\*\$1.58

Total Shown  
Above

## Subtracting from Three-Place Numbers

MINUENDS TO 169 OR \$1.69

There were 158 children on the playground. The bell rang. All but 75 children went into the building. How many went into the building?

Will the answer be smaller or larger than 158? Is the answer the part of 158 that has gone? How do you find the number gone from 158 if 75 is left? Study the example. Say the missing numbers.

First subtract the ones.  $8 - 5 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in ones place.

Then subtract the tens.  $15 - 7 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in tens place.

How many children went into the building?

Solve each problem. Think each time whether you add or subtract and why.

1. Jim had \$1.58 in his toy bank. He took out \$.75 to buy his mother a present. How much money was left in his bank?
2. The storekeeper had 165 hockey sticks. He sold 84. How many did he have left?
3. The storekeeper had 159 hockey pucks. He sold all but 92. How many did he sell?

Copy each example and subtract. Check by adding.

- |    |   |   |   |   |   |   |   |
|----|---|---|---|---|---|---|---|
| 4. | $\begin{array}{r} 169 \\ -94 \\ \hline \end{array}$     | $\begin{array}{r} 151 \\ -70 \\ \hline \end{array}$     | $\begin{array}{r} 157 \\ -83 \\ \hline \end{array}$     | $\begin{array}{r} 162 \\ -71 \\ \hline \end{array}$     | $\begin{array}{r} 168 \\ -86 \\ \hline \end{array}$     | $\begin{array}{r} 155 \\ -62 \\ \hline \end{array}$ | $\begin{array}{r} 159 \\ -85 \\ \hline \end{array}$ |
| 5. | $\begin{array}{r} \$1.42 \\ -.60 \\ \hline \end{array}$ | $\begin{array}{r} \$1.34 \\ -.72 \\ \hline \end{array}$ | $\begin{array}{r} \$1.26 \\ -.54 \\ \hline \end{array}$ | $\begin{array}{r} \$1.17 \\ -.85 \\ \hline \end{array}$ | $\begin{array}{r} \$1.49 \\ -.93 \\ \hline \end{array}$ |   |   |

158
-75
<hr/>
83

## Zeros in Subtraction

Sometimes when you subtract you will have a zero in your answer. Be sure to write it in the correct place.

Study each of the two examples shown. Say the missing numbers as you read each one.

$$\begin{array}{r} 147 \\ -97 \\ \hline 50 \end{array}$$

First subtract the ones.  $7 - 7 = ?$  Write  $?$  in ones place.

Then subtract the tens.  $14 - 9 = ?$  Write  $?$  in tens place.

Sometimes you will have a zero in the number you are subtracting. You know that none from a number leaves the number.

$$\begin{array}{r} 135 \\ -60 \\ \hline 75 \end{array}$$

First subtract the ones.  $5 - 0 = ?$  Write  $?$  in ones place.

Then subtract the tens.  $13 - 6 = ?$  Write  $?$  in tens place.

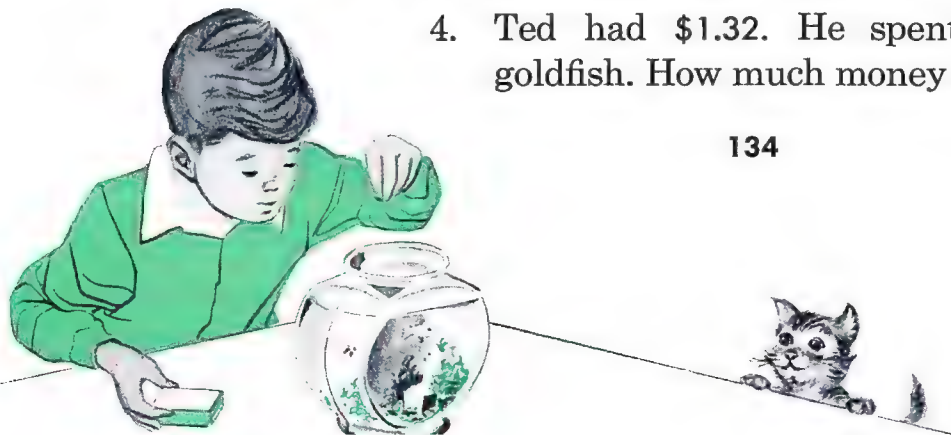
Copy each example, subtract, and check.

1.	$\begin{array}{r} 156 \\ 96 \\ \hline \end{array}$	$\begin{array}{r} 162 \\ 80 \\ \hline \end{array}$	$\begin{array}{r} 148 \\ 50 \\ \hline \end{array}$	$\begin{array}{r} 139 \\ 79 \\ \hline \end{array}$	$\begin{array}{r} 154 \\ 70 \\ \hline \end{array}$	$\begin{array}{r} 127 \\ 67 \\ \hline \end{array}$
----	--	--	--	--	--	--

2.	$\begin{array}{r} \$1.25 \\ .35 \\ \hline \end{array}$	$\begin{array}{r} \$1.19 \\ .89 \\ \hline \end{array}$	$\begin{array}{r} \$1.61 \\ .90 \\ \hline \end{array}$	$\begin{array}{r} \$1.48 \\ .60 \\ \hline \end{array}$	$\begin{array}{r} \$1.69 \\ .79 \\ \hline \end{array}$
----	--	--	--	--	--

Solve each problem. Tell why you should subtract.

- Kay had \$1.65. She put \$.95 in her bank. How much money did she keep out to spend?
- Ted had \$1.32. He spent \$.50 for some goldfish. How much money did he have left?



## Facts about Seventeen and Eighteen

The following number strips show that 9 and 8 together make the same total as 10 and 7, or 17.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----

A. 

1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7
---	---	---	---	---	---	---	---	---	----	---	---	---	---	---	---	---

B. 

1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Use the number strips in rows A and B to help you find the answers to these examples.

- $10 + 7 =$        $7 + 10 =$        $17 - 7 =$        $17 - 10 =$
- $9 + 8 =$        $8 + 9 =$        $17 - 8 =$        $17 - 9 =$

The following number strips show that 9 and 9 together make the same total as 10 and 8, or 18.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----

A. 

1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8
---	---	---	---	---	---	---	---	---	----	---	---	---	---	---	---	---	---

B. 

1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Use the number strips in rows A and B to help you find the answers to these examples.

- $10 + 8 =$        $8 + 10 =$        $18 - 8 =$        $18 - 10 =$
- $9 + 9 = \underline{\quad? \quad}$        $18 - 9 = \underline{\quad? \quad}$

Study and learn the following addition and subtraction facts. Practice saying them and writing them until you feel sure you can remember them.

10	17	9	17	8	17	10	18	9	18
$\begin{array}{r} +7 \\ \hline 17 \end{array}$	$\begin{array}{r} -7 \\ \hline 10 \end{array}$	$\begin{array}{r} +8 \\ \hline 17 \end{array}$	$\begin{array}{r} -8 \\ \hline 9 \end{array}$	$\begin{array}{r} +9 \\ \hline 17 \end{array}$	$\begin{array}{r} -9 \\ \hline 8 \end{array}$	$\begin{array}{r} +8 \\ \hline 18 \end{array}$	$\begin{array}{r} -8 \\ \hline 10 \end{array}$	$\begin{array}{r} +9 \\ \hline 18 \end{array}$	$\begin{array}{r} -9 \\ \hline 9 \end{array}$



## All the Doubles in Addition to Eighteen

The pictures below show all the doubles in addition from 2 to 18. Some of them you have studied already. In a double the numbers to be added are the same.

Copy the examples and write the answers. Use the pictures for help if you need them.

1.     1      2      3      4   
       +1      +2      +3      +4
2.     5      6      7   
       +5      +6      +7
3.     8      9   
       +8      +9

The doubles are easy to remember. See how the answers to the examples above go from the first double to the ninth double. The answers are even numbers: 2, 4, 6, 8, 10, 12, 14, 16, 18. They are the same numbers you get when you count by 2's, starting with 2.

4. In the next row the even numbers are red. The odd numbers are not colored. Read the odd numbers. Read the even numbers.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

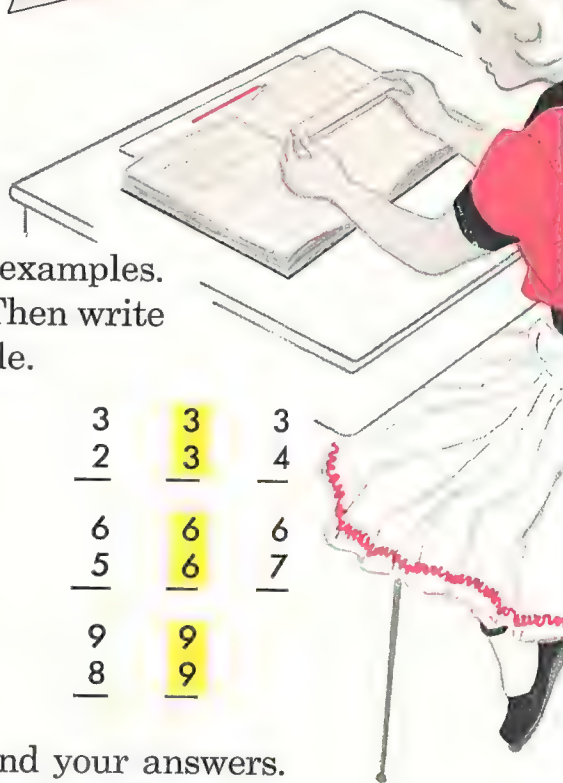
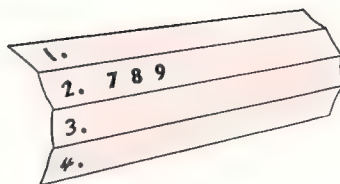
Knowing the doubles will help you in learning facts near each double. See, below, how knowing the answer to 6 and 6 can help you to remember the answer to 6 and 5, or to 6 and 7.

$$\begin{array}{r} 6 \\ +5 \\ \hline 11 \end{array} \qquad \begin{array}{r} 6 \\ +6 \\ \hline 12 \end{array} \qquad \begin{array}{r} 6 \\ +7 \\ \hline 13 \end{array}$$

## Remembering Facts near the Doubles

This picture shows how to use folded paper in writing the answers to examples. Answers to the first three examples in row 2 are shown. Using folded paper saves copying examples.

Use folded paper under each row of examples. First write the answers of the doubles. Then write the answers before and after each double.



- |    |   |   |   |    |   |   |   |    |   |   |   |
|----|---|---|---|----|---|---|---|----|---|---|---|
| 1. | $\begin{array}{r} 1 \\ 0 \\ \hline \end{array}$ | $\begin{array}{r} 1 \\ 1 \\ \hline \end{array}$ | $\begin{array}{r} 1 \\ 2 \\ \hline \end{array}$ | 2. | $\begin{array}{r} 2 \\ 1 \\ \hline \end{array}$ | $\begin{array}{r} 2 \\ 2 \\ \hline \end{array}$ | $\begin{array}{r} 2 \\ 3 \\ \hline \end{array}$ | 3. | $\begin{array}{r} 3 \\ 2 \\ \hline \end{array}$ | $\begin{array}{r} 3 \\ 3 \\ \hline \end{array}$ | $\begin{array}{r} 3 \\ 4 \\ \hline \end{array}$ |
| 2. | $\begin{array}{r} 4 \\ 3 \\ \hline \end{array}$ | $\begin{array}{r} 4 \\ 4 \\ \hline \end{array}$ | $\begin{array}{r} 4 \\ 5 \\ \hline \end{array}$ | 5. | $\begin{array}{r} 5 \\ 4 \\ \hline \end{array}$ | $\begin{array}{r} 5 \\ 5 \\ \hline \end{array}$ | $\begin{array}{r} 5 \\ 6 \\ \hline \end{array}$ | 6. | $\begin{array}{r} 6 \\ 5 \\ \hline \end{array}$ | $\begin{array}{r} 6 \\ 6 \\ \hline \end{array}$ | $\begin{array}{r} 6 \\ 7 \\ \hline \end{array}$ |
| 3. | $\begin{array}{r} 7 \\ 6 \\ \hline \end{array}$ | $\begin{array}{r} 7 \\ 7 \\ \hline \end{array}$ | $\begin{array}{r} 7 \\ 8 \\ \hline \end{array}$ | 8. | $\begin{array}{r} 8 \\ 7 \\ \hline \end{array}$ | $\begin{array}{r} 8 \\ 8 \\ \hline \end{array}$ | $\begin{array}{r} 8 \\ 9 \\ \hline \end{array}$ | 9. | $\begin{array}{r} 9 \\ 8 \\ \hline \end{array}$ | $\begin{array}{r} 9 \\ 9 \\ \hline \end{array}$ |   |
- Look at the first row of examples and your answers. Is 2 and 1 less than 2 and 2? How much less? Is 2 and 3 more than 2 and 2? How much more?
  - Look at the second row of examples and your answers. Is 5 and 4 less than 5 and 5? How much less? Is 5 and 6 more than 5 and 5? How much more?
  - Look at the third row of examples and your answers. Is 8 and 7 less than 8 and 8? How much less? Is 8 and 9 more than 8 and 8? How much more?
  - $6 + 7$  is how much more than  $6 + 6$ ? Then  $6 + 7 = \underline{\quad ? \quad}$
  - $7 + 6$  is how much less than  $7 + 7$ ? Then  $7 + 6 = \underline{\quad ? \quad}$
  - What double would you use to help you remember 8 and 7?  $7 + 8$ ?  $9 + 8$ ?  $7 + 6$ ?  $6 + 7$ ?

## Writing Fact Families

The fact family for 16, 9, and 7 is written below.

$$9 + 7 = 16 \quad 7 + 9 = 16 \quad 16 - 7 = 9 \quad 16 - 9 = 7$$

Write the fact family for each group of numbers.  
Remember, families with doubles have only two facts.

- |    |          |          |          |          |          |
|----|----------|----------|----------|----------|----------|
| 1. | 16, 8, 8 | 17, 9, 8 | 18, 9, 9 | 12, 6, 6 | 11, 4, 7 |
| 2. | 11, 8, 3 | 13, 7, 6 | 15, 8, 7 | 14, 7, 7 | 14, 6, 8 |
| 3. | 12, 7, 5 | 13, 9, 4 | 11, 5, 6 | 15, 6, 9 | 10, 2, 8 |
| 4. | 12, 4, 8 | 14, 5, 9 | 13, 5, 8 | 11, 2, 9 | 10, 5, 5 |

## Ten as a Helper in Addition and Subtraction

### REVIEW OF TEEN FACTS

Do you know what the word *nineteen* means? It means 9 and 10, or 10 and 9.  $9 + 10 = 19$ , and  $10 + 9 = 19$ .

1. Write two addition facts that tell what the word *eighteen* means.

If you know  $9 + 10 = 19$  and  $10 + 9 = 19$ , you know  $19 - 10 = 9$  and  $19 - 9 = 10$ . Why?

Copy each row of examples and write the answers.

- |    |          |          |          |           |
|----|----------|----------|----------|-----------|
| 2. | $10 + 1$ | $1 + 10$ | $11 - 1$ | $11 - 10$ |
| 3. | $10 + 2$ | $2 + 10$ | $12 - 2$ | $12 - 10$ |
| 4. | $10 + 3$ | $3 + 10$ | $13 - 3$ | $13 - 10$ |
| 5. | $10 + 4$ | $4 + 10$ | $14 - 4$ | $14 - 10$ |
| 6. | $10 + 5$ | $5 + 10$ | $15 - 5$ | $15 - 10$ |
| 7. | $10 + 6$ | $6 + 10$ | $16 - 6$ | $16 - 10$ |
| 8. | $10 + 7$ | $7 + 10$ | $17 - 7$ | $17 - 10$ |
| 9. | $10 + 8$ | $8 + 10$ | $18 - 8$ | $18 - 10$ |

Addition and Subtraction Charts

Betty made an addition chart to help her remember her “teen” facts, and Bob made a subtraction chart. Copy the two charts. Put in the missing numbers and facts on your charts.

Betty's Addition Chart

1 + 10 = 11	If you know 4 + 10 = 14, you know 4 + 9 = 13; 4 + 8 = <u>  ?  </u> ; 4 + 7 = <u>  ?  </u> .							
2 + 10 = 12	2 + 9 = 11							
3 + 10 = 13	3 + 9 = 12	3 + 8 = 11						
4 + 10 = 14	4 + 9 =	4 + 8 =	4 + 7 =					
5 + 10 =	5 + 9 =	5 + 8 =	5 + 7 =					
6 + 10 =								
7 + 10 =								
8 + 10 =								
9 + 10 =								

Bob's Subtraction Chart

19 - 10 = 9	If you know 16 - 10 = 6, you know 16 - 9 = 7; 16 - 8 = <u>  ?  </u> ; 16 - 7 = <u>  ?  </u> .							
18 - 10 = 8	18 - 9 = 9							
17 - 10 = 7	17 - 9 = 8	17 - 8 = 9						
16 - 10 = 6	16 - 9 =	16 - 8 =	16 - 7 =					
15 - 10 =								
14 - 10 =								
13 - 10 =								
12 - 10 =								
11 - 10 =								



# Practice to Remember

Copy each example and write the answer.

1.  $\begin{array}{r} 0 \\ +8 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ +9 \\ \hline \end{array}$   $\begin{array}{r} 0 \\ +7 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ +8 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ +9 \\ \hline \end{array}$   $\begin{array}{r} 9 \\ +0 \\ \hline \end{array}$   $\begin{array}{r} 9 \\ +3 \\ \hline \end{array}$   $\begin{array}{r} 8 \\ +2 \\ \hline \end{array}$   $\begin{array}{r} 6 \\ +0 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ +7 \\ \hline \end{array}$
2.  $\begin{array}{r} 4 \\ +9 \\ \hline \end{array}$   $\begin{array}{r} 3 \\ +8 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ +7 \\ \hline \end{array}$   $\begin{array}{r} 0 \\ +5 \\ \hline \end{array}$   $\begin{array}{r} 6 \\ +1 \\ \hline \end{array}$   $\begin{array}{r} 4 \\ +0 \\ \hline \end{array}$   $\begin{array}{r} 5 \\ +1 \\ \hline \end{array}$   $\begin{array}{r} 6 \\ +2 \\ \hline \end{array}$   $\begin{array}{r} 7 \\ +3 \\ \hline \end{array}$   $\begin{array}{r} 5 \\ +9 \\ \hline \end{array}$
3.  $\begin{array}{r} 4 \\ +8 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ +4 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ +5 \\ \hline \end{array}$   $\begin{array}{r} 3 \\ +6 \\ \hline \end{array}$   $\begin{array}{r} 4 \\ +7 \\ \hline \end{array}$   $\begin{array}{r} 3 \\ +0 \\ \hline \end{array}$   $\begin{array}{r} 8 \\ +5 \\ \hline \end{array}$   $\begin{array}{r} 9 \\ +6 \\ \hline \end{array}$   $\begin{array}{r} 5 \\ +3 \\ \hline \end{array}$   $\begin{array}{r} 6 \\ +4 \\ \hline \end{array}$
4.  $\begin{array}{r} 9 \\ +7 \\ \hline \end{array}$   $\begin{array}{r} 8 \\ +8 \\ \hline \end{array}$   $\begin{array}{r} 5 \\ +7 \\ \hline \end{array}$   $\begin{array}{r} 6 \\ +8 \\ \hline \end{array}$   $\begin{array}{r} 7 \\ +7 \\ \hline \end{array}$   $\begin{array}{r} 5 \\ +6 \\ \hline \end{array}$   $\begin{array}{r} 6 \\ +7 \\ \hline \end{array}$   $\begin{array}{r} 9 \\ +9 \\ \hline \end{array}$   $\begin{array}{r} 8 \\ +9 \\ \hline \end{array}$   $\begin{array}{r} 6 \\ +6 \\ \hline \end{array}$
5.  $\begin{array}{r} \$1.59 \\ - .67 \\ \hline \end{array}$   $\begin{array}{r} \$1.34 \\ - .40 \\ \hline \end{array}$   $\begin{array}{r} \$1.10 \\ - .30 \\ \hline \end{array}$   $\begin{array}{r} \$1.28 \\ - .75 \\ \hline \end{array}$   $\begin{array}{r} \$1.05 \\ - .82 \\ \hline \end{array}$   $\begin{array}{r} \$1.48 \\ - .78 \\ \hline \end{array}$
6.  $\begin{array}{r} 1 \\ 6 \\ +8 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ 1 \\ +7 \\ \hline \end{array}$   $\begin{array}{r} 3 \\ 2 \\ +8 \\ \hline \end{array}$   $\begin{array}{r} 4 \\ 2 \\ +5 \\ \hline \end{array}$   $\begin{array}{r} 5 \\ 4 \\ +5 \\ \hline \end{array}$   $\begin{array}{r} 6 \\ 3 \\ +2 \\ \hline \end{array}$   $\begin{array}{r} 7 \\ 1 \\ +6 \\ \hline \end{array}$   $\begin{array}{r} 8 \\ 1 \\ +4 \\ \hline \end{array}$   $\begin{array}{r} 4 \\ 3 \\ +6 \\ \hline \end{array}$   $\begin{array}{r} 5 \\ 2 \\ +4 \\ \hline \end{array}$
7.  $\begin{array}{r} 11 \\ 50 \\ +98 \\ \hline \end{array}$   $\begin{array}{r} 20 \\ 63 \\ +45 \\ \hline \end{array}$   $\begin{array}{r} 32 \\ 50 \\ +34 \\ \hline \end{array}$   $\begin{array}{r} 30 \\ 14 \\ +61 \\ \hline \end{array}$   $\begin{array}{r} 71 \\ 22 \\ +14 \\ \hline \end{array}$   $\begin{array}{r} 43 \\ 13 \\ +52 \\ \hline \end{array}$
8.  $\begin{array}{r} 8 \\ -8 \\ \hline \end{array}$   $\begin{array}{r} 7 \\ -7 \\ \hline \end{array}$   $\begin{array}{r} 11 \\ -9 \\ \hline \end{array}$   $\begin{array}{r} 12 \\ -3 \\ \hline \end{array}$   $\begin{array}{r} 6 \\ -6 \\ \hline \end{array}$   $\begin{array}{r} 13 \\ -9 \\ \hline \end{array}$   $\begin{array}{r} 9 \\ -7 \\ \hline \end{array}$   $\begin{array}{r} 7 \\ -1 \\ \hline \end{array}$   $\begin{array}{r} 6 \\ -2 \\ \hline \end{array}$   $\begin{array}{r} 10 \\ -3 \\ \hline \end{array}$
9.  $\begin{array}{r} 10 \\ -9 \\ \hline \end{array}$   $\begin{array}{r} 9 \\ -8 \\ \hline \end{array}$   $\begin{array}{r} 9 \\ -0 \\ \hline \end{array}$   $\begin{array}{r} 10 \\ -2 \\ \hline \end{array}$   $\begin{array}{r} 8 \\ -7 \\ \hline \end{array}$   $\begin{array}{r} 11 \\ -8 \\ \hline \end{array}$   $\begin{array}{r} 5 \\ -5 \\ \hline \end{array}$   $\begin{array}{r} 4 \\ -0 \\ \hline \end{array}$   $\begin{array}{r} 8 \\ -2 \\ \hline \end{array}$   $\begin{array}{r} 14 \\ -9 \\ \hline \end{array}$
10.  $\begin{array}{r} 12 \\ -8 \\ \hline \end{array}$   $\begin{array}{r} 7 \\ -5 \\ \hline \end{array}$   $\begin{array}{r} 11 \\ -7 \\ \hline \end{array}$   $\begin{array}{r} 13 \\ -5 \\ \hline \end{array}$   $\begin{array}{r} 8 \\ -3 \\ \hline \end{array}$   $\begin{array}{r} 16 \\ -7 \\ \hline \end{array}$   $\begin{array}{r} 16 \\ -8 \\ \hline \end{array}$   $\begin{array}{r} 12 \\ -7 \\ \hline \end{array}$   $\begin{array}{r} 0 \\ -0 \\ \hline \end{array}$   $\begin{array}{r} 14 \\ -7 \\ \hline \end{array}$
11.  $\begin{array}{r} 9 \\ -6 \\ \hline \end{array}$   $\begin{array}{r} 15 \\ -6 \\ \hline \end{array}$   $\begin{array}{r} 10 \\ -4 \\ \hline \end{array}$   $\begin{array}{r} 14 \\ -8 \\ \hline \end{array}$   $\begin{array}{r} 11 \\ -6 \\ \hline \end{array}$   $\begin{array}{r} 17 \\ -9 \\ \hline \end{array}$   $\begin{array}{r} 12 \\ -6 \\ \hline \end{array}$   $\begin{array}{r} 9 \\ -5 \\ \hline \end{array}$   $\begin{array}{r} 13 \\ -7 \\ \hline \end{array}$   $\begin{array}{r} 18 \\ -9 \\ \hline \end{array}$

## Getting Ready for Washington's Birthday

SINGLE-COLUMN ADDITION—SUMS TO 18

Some of the third grade children began to make things for Washington's Birthday. Joe cut out 4 hatchets, Sue cut out 4, and Bob cut out 9. How many hatchets did these children cut out all together?

How do you know that you should add?

Study the example. Say each missing number.

First see 4 and 4. Think ? Then think ? + 9. Write ? The three children cut out ? hatchets.

Solve each problem. Think why you add.

1. Some of the children colored pictures of cherries. Jane colored 5, Bill 3, and Dick 7. How many cherries in all did they color?
2. Some of the children made pictures of flags for the windows. Ruth made 6, Ellen made 3, and Betty made 7. How many flags in all did the three children make for the windows?

Copy each example. Add down. Check by going over your work again.

3.
 

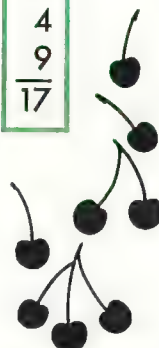
3	2	7	5	4	6	1	5	4
6	7	1	4	5	3	7	3	2
<u>6</u>	<u>8</u>	<u>9</u>	<u>9</u>	<u>7</u>	<u>9</u>	<u>9</u>	<u>4</u>	<u>7</u>
4.
 

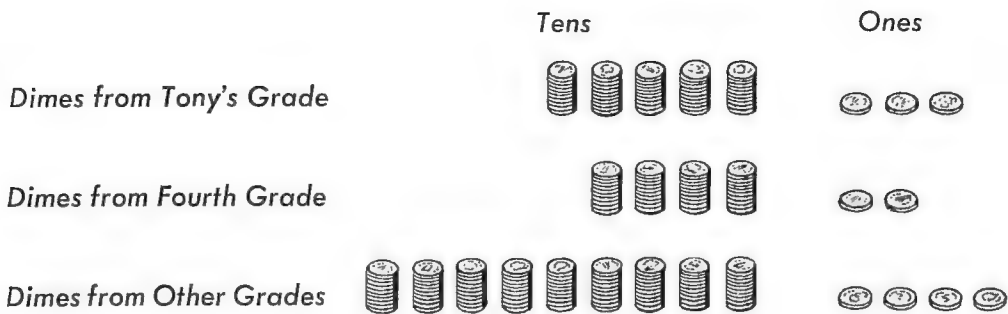
5	3	1	2	6	4	2	1	4
1	6	7	6	3	1	5	8	4
<u>9</u>	<u>7</u>	<u>5</u>	<u>4</u>	<u>8</u>	<u>9</u>	<u>7</u>	<u>4</u>	<u>8</u>
5.
 

3	2	1	4	5	3	2	1	1
3	7	2	3	4	4	3	3	4
<u>6</u>	<u>5</u>	<u>8</u>	<u>4</u>	<u>7</u>	<u>5</u>	<u>9</u>	<u>6</u>	<u>8</u>



$$\begin{array}{r} 4 \\ 4 \\ 9 \\ \hline 17 \end{array}$$





## The March of Dimes

SUMS TO 189 OR \$1.89

53 dimes  
42 dimes  
94 dimes  
189 dimes

All the school children had helped in The March of Dimes. Tony's grade gave 53 dimes. The fourth grade gave 42. All the other grades together gave 94. How many dimes did the whole school give?

Why should you add to find the answer?

Study the example. Say each missing number.

First add the ones. See 3, 2, and 4. Think 3, 5, 9. Write ? Then add the tens. See 5, 4, and 9. Think 5, 9, 18. Write ?

The school gave ? dimes in all.

Copy each example and add down. Check by going over your work.

- |    |   |   |   |   |   |   |   |   |
|----|---|---|---|---|---|---|---|---|
| 1. | $\begin{array}{r} 87 \\ 92 \\ \hline \end{array}$       | $\begin{array}{r} 93 \\ 94 \\ \hline \end{array}$       | $\begin{array}{r} 74 \\ 90 \\ \hline \end{array}$       | $\begin{array}{r} 65 \\ 84 \\ \hline \end{array}$       | $\begin{array}{r} 90 \\ 82 \\ \hline \end{array}$       | $\begin{array}{r} 91 \\ 31 \\ \hline \end{array}$       | $\begin{array}{r} 52 \\ 86 \\ \hline \end{array}$       | $\begin{array}{r} 40 \\ 75 \\ \hline \end{array}$       |
| 2. | $\begin{array}{r} 21 \\ 65 \\ 32 \\ \hline \end{array}$ | $\begin{array}{r} 12 \\ 74 \\ 53 \\ \hline \end{array}$ | $\begin{array}{r} 15 \\ 71 \\ 82 \\ \hline \end{array}$ | $\begin{array}{r} 40 \\ 43 \\ 95 \\ \hline \end{array}$ | $\begin{array}{r} 33 \\ 60 \\ 91 \\ \hline \end{array}$ | $\begin{array}{r} 21 \\ 52 \\ 33 \\ \hline \end{array}$ | $\begin{array}{r} 30 \\ 35 \\ 80 \\ \hline \end{array}$ | $\begin{array}{r} 12 \\ 32 \\ 92 \\ \hline \end{array}$ |

Remember to put the dollar sign and the decimal point in your answers to the following examples.

- |    |  |  |  |  |  |  |  |  |
|----|--|--|--|--|--|--|--|--|
| 3. | $\begin{array}{r} \$ .95 \\ .72 \\ \hline \end{array}$ | $\begin{array}{r} \$ .83 \\ .75 \\ \hline \end{array}$ | $\begin{array}{r} \$ .53 \\ .22 \\ \hline \end{array}$ | $\begin{array}{r} \$ .62 \\ .35 \\ \hline \end{array}$ | $\begin{array}{r} \$ .50 \\ .48 \\ \hline \end{array}$ | $\begin{array}{r} \$ .14 \\ .63 \\ \hline \end{array}$ | $\begin{array}{r} \$ .24 \\ .04 \\ \hline \end{array}$ | $\begin{array}{r} \$ .31 \\ .45 \\ \hline \end{array}$ |
|    | $\begin{array}{r} .84 \\ \hline \end{array}$           | $\begin{array}{r} .80 \\ \hline \end{array}$           | $\begin{array}{r} .51 \\ \hline \end{array}$           | $\begin{array}{r} .71 \\ \hline \end{array}$           | $\begin{array}{r} .90 \\ \hline \end{array}$           | $\begin{array}{r} .90 \\ \hline \end{array}$           |  |  |

## The Big Snowstorm

MINUENDS TO 189 OR \$1.89

1. There were 187 children in Jane's school. One day there was a big snowstorm. Only 92 children could get to school. How many stayed out of school?

How do you know this is a subtraction problem?

Study the example. Say each missing number.

First subtract the ones.  $7 - 2 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in ones place.

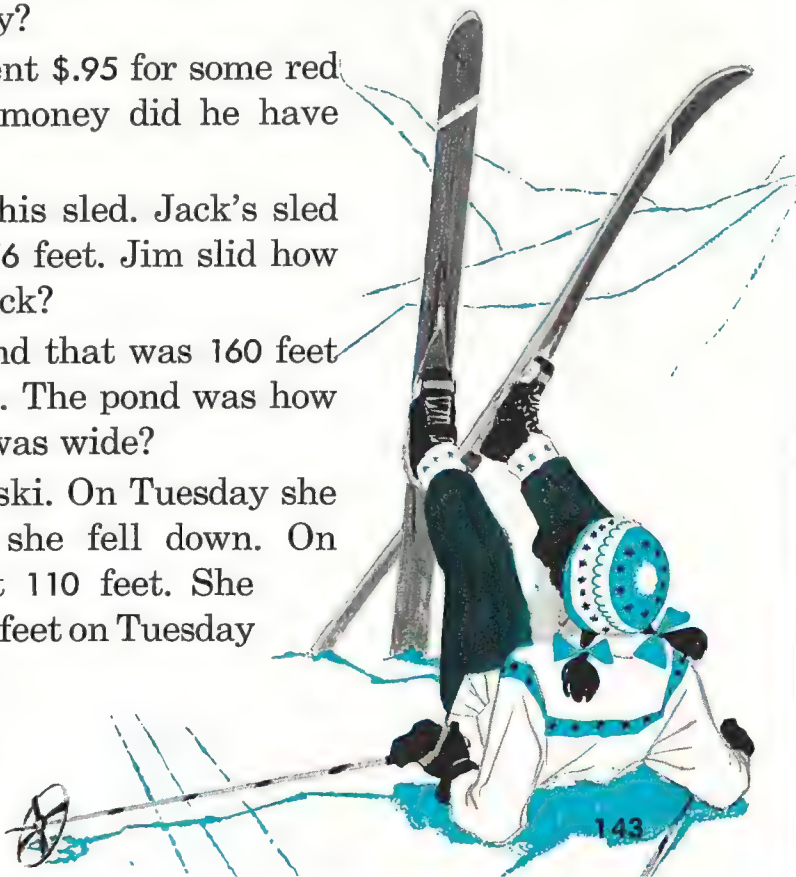
Then subtract the tens.  $18 - 9 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in tens place.

There were  $\underline{\quad ? \quad}$  children who stayed out of school.

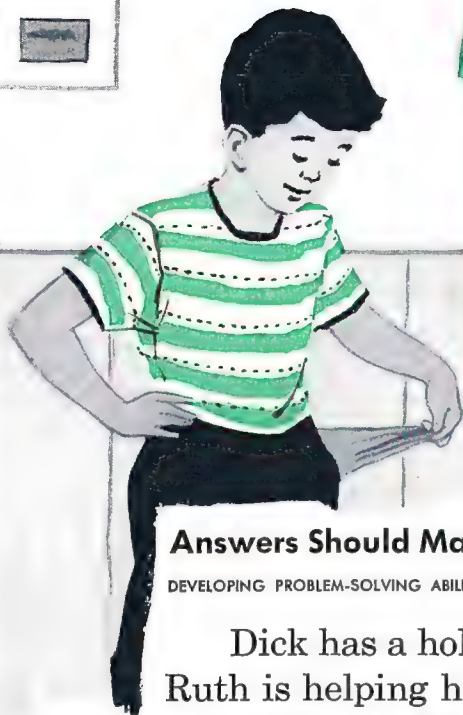
Solve these problems. Think why you subtract.

2. There were 142 children in Joan's school and 52 of them came in the school bus. How many came to school some other way?
3. Joe had \$1.75. He spent \$.95 for some red mittens. How much money did he have left?
4. Jim slid 156 feet on his sled. Jack's sled stuck after he went 76 feet. Jim slid how much farther than Jack?
5. Mary skated on a pond that was 160 feet long and 70 feet wide. The pond was how much longer than it was wide?
6. Ann was learning to ski. On Tuesday she went 50 feet before she fell down. On Wednesday she went 110 feet. She went how many fewer feet on Tuesday than on Wednesday?

187
-92
95







## Answers Should Make Sense

DEVELOPING PROBLEM-SOLVING ABILITY

Dick has a hole in his pocket and he lost some money. Ruth is helping him find out how much he lost.

Dick says, "I had 53¢ in my pocket." Ruth writes 53¢.

Dick says, "Now I have only 33¢. Count it." Ruth counts the money and writes 33¢.

$$\begin{array}{r} 53¢ \\ 33¢ \\ \hline 86¢ \end{array}$$

Then she *adds* and checks her work.

She says, "You must have lost 86¢."

Dick says, "That does not make sense. How could I lose more than I had in my pocket?"

Ruth says, "You couldn't, of course! I *added*. I should have *subtracted*." She subtracts and checks.

$$\begin{array}{r} 53¢ \\ 33¢ \\ \hline 20¢ \end{array}$$

She says, "You must have lost 20¢."

Dick says, "That answer makes sense. I must have lost two dimes. Dimes are small. I am glad the hole was no bigger. I might have lost all my money."

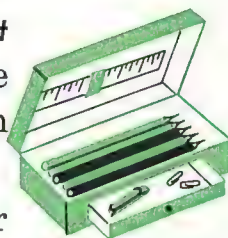
Think about your answers when you solve problems. Be sure your answers make sense. If they do not make sense, see if you added when you should have subtracted. Or see if you subtracted when you should have added.

## Add or Subtract

### DEVELOPING PROBLEM-SOLVING ABILITY

Write the problem numbers from 1 to 8 in a column. After each number write *Add* if you should add, *Subtract* if you should subtract. Study each problem to make sure that the word you write makes sense. Then solve each problem and check the answer.

1. Sam bought a pencil box for 20¢. Mike paid 25¢ for his pencil box. Sam's box cost how much less than Mike's?
2. Judy cut out 25 paper dolls. Patsy cut out 32. How many paper dolls were cut out by both girls?
3. Joan made a score of 50 in a beanbag game. Kay's score was 30. Joan won the game by how much?
4. Tony learned to spell 16 new words in one week and 13 words the next week. How many words did he learn in all in the two weeks?
5. Alice learned to spell 52 words in December and 68 words in January. She learned how many more words in January than in December?
6. Jack collected comic books to send to the girls and boys in hospitals. One week he collected 45 books and the next week, 53 books. How many books all together did he collect in the two weeks?
7. Joe sold papers. One week he collected 30¢ from one house and 60¢ from the next house. How much did he collect that week from both houses?
8. Ted wanted to get a fish bowl for his schoolroom. One bowl cost \$1.25. Another cost \$.95. The first bowl cost how much more than the second bowl?



## Practice to Remember

Copy and add.

1.  $\begin{array}{r} 6 \\ 7 \end{array}$   $\begin{array}{r} 9 \\ 5 \end{array}$   $\begin{array}{r} 8 \\ 9 \end{array}$   $\begin{array}{r} 7 \\ 8 \end{array}$   $\begin{array}{r} 5 \\ 7 \end{array}$   $\begin{array}{r} 9 \\ 6 \end{array}$   $\begin{array}{r} 7 \\ 4 \end{array}$   $\begin{array}{r} 4 \\ 9 \end{array}$   $\begin{array}{r} 6 \\ 8 \end{array}$   $\begin{array}{r} 7 \\ 9 \end{array}$
2.  $\begin{array}{r} 30 \\ 60 \end{array}$   $\begin{array}{r} 40 \\ 80 \end{array}$   $\begin{array}{r} 50 \\ 30 \end{array}$   $\begin{array}{r} 30 \\ 70 \end{array}$   $\begin{array}{r} \$ .80 \\ .50 \end{array}$   $\begin{array}{r} \$ .20 \\ .30 \end{array}$   $\begin{array}{r} \$ .90 \\ .60 \end{array}$   $\begin{array}{r} \$ .70 \\ .60 \end{array}$
3.  $\begin{array}{r} 71 \\ 38 \end{array}$   $\begin{array}{r} 80 \\ 42 \end{array}$   $\begin{array}{r} 71 \\ 56 \end{array}$   $\begin{array}{r} 90 \\ 87 \end{array}$   $\begin{array}{r} \$ .70 \\ .99 \end{array}$   $\begin{array}{r} \$ .93 \\ .65 \end{array}$   $\begin{array}{r} \$ .22 \\ .86 \end{array}$   $\begin{array}{r} \$ .93 \\ .96 \end{array}$

Copy. Add down. Check by going over your work.

4.  $\begin{array}{r} 2 \\ 4 \\ 9 \end{array}$   $\begin{array}{r} 3 \\ 5 \\ 8 \end{array}$   $\begin{array}{r} 6 \\ 1 \\ 7 \end{array}$   $\begin{array}{r} 4 \\ 5 \\ 7 \end{array}$   $\begin{array}{r} 2 \\ 6 \\ 7 \end{array}$   $\begin{array}{r} 6 \\ 3 \\ 9 \end{array}$   $\begin{array}{r} 2 \\ 5 \\ 6 \end{array}$   $\begin{array}{r} 4 \\ 1 \\ 9 \end{array}$   $\begin{array}{r} 7 \\ 0 \\ 5 \end{array}$   $\begin{array}{r} 5 \\ 4 \\ 8 \end{array}$
5.  $\begin{array}{r} 12 \\ 22 \\ 43 \end{array}$   $\begin{array}{r} 45 \\ 20 \\ 24 \end{array}$   $\begin{array}{r} 10 \\ 13 \\ 73 \end{array}$   $\begin{array}{r} 23 \\ 12 \\ 11 \end{array}$   $\begin{array}{r} 41 \\ 40 \\ 13 \end{array}$   $\begin{array}{r} 19 \\ 60 \\ 10 \end{array}$   $\begin{array}{r} 17 \\ 40 \\ 22 \end{array}$   $\begin{array}{r} 10 \\ 39 \\ 50 \end{array}$
6.  $\begin{array}{r} 24 \\ 62 \\ 71 \end{array}$   $\begin{array}{r} 53 \\ 24 \\ 90 \end{array}$   $\begin{array}{r} 76 \\ 20 \\ 82 \end{array}$   $\begin{array}{r} 42 \\ 43 \\ 61 \end{array}$   $\begin{array}{r} 35 \\ 21 \\ 91 \end{array}$   $\begin{array}{r} 17 \\ 70 \\ 82 \end{array}$   $\begin{array}{r} 70 \\ 23 \\ 96 \end{array}$   $\begin{array}{r} 63 \\ 13 \\ 71 \end{array}$

Copy and subtract. Check by adding.

7.  $\begin{array}{r} 14 \\ 5 \end{array}$   $\begin{array}{r} 13 \\ 9 \end{array}$   $\begin{array}{r} 15 \\ 8 \end{array}$   $\begin{array}{r} 13 \\ 7 \end{array}$   $\begin{array}{r} 15 \\ 9 \end{array}$   $\begin{array}{r} 17 \\ 9 \end{array}$   $\begin{array}{r} 12 \\ 7 \end{array}$   $\begin{array}{r} 11 \\ 4 \end{array}$   $\begin{array}{r} 14 \\ 8 \end{array}$   $\begin{array}{r} 16 \\ 9 \end{array}$
8.  $\begin{array}{r} 120 \\ 50 \end{array}$   $\begin{array}{r} 130 \\ 50 \end{array}$   $\begin{array}{r} 150 \\ 80 \end{array}$   $\begin{array}{r} 170 \\ 90 \end{array}$   $\begin{array}{r} 160 \\ 70 \end{array}$   $\begin{array}{r} 110 \\ 40 \end{array}$   $\begin{array}{r} 140 \\ 60 \end{array}$   $\begin{array}{r} 100 \\ 30 \end{array}$   $\begin{array}{r} 180 \\ 90 \end{array}$
9.  $\begin{array}{r} 118 \\ 73 \end{array}$   $\begin{array}{r} 109 \\ 75 \end{array}$   $\begin{array}{r} 127 \\ 72 \end{array}$   $\begin{array}{r} 154 \\ 70 \end{array}$   $\begin{array}{r} 138 \\ 82 \end{array}$   $\begin{array}{r} 175 \\ 83 \end{array}$   $\begin{array}{r} 166 \\ 94 \end{array}$   $\begin{array}{r} 179 \\ 87 \end{array}$   $\begin{array}{r} 187 \\ 94 \end{array}$
10.  $\begin{array}{r} \$1.82 \\ .92 \end{array}$   $\begin{array}{r} \$1.56 \\ .95 \end{array}$   $\begin{array}{r} \$1.47 \\ .86 \end{array}$   $\begin{array}{r} \$1.05 \\ .45 \end{array}$   $\begin{array}{r} \$1.17 \\ .35 \end{array}$   $\begin{array}{r} \$1.39 \\ .64 \end{array}$   $\begin{array}{r} \$1.63 \\ .83 \end{array}$

## Finding What You Need to Study Again

If you need to study something again, the page numbers at the side tell you where to find it.

- Write the fact family for 17, 8, 9; for 18, 9, 9.

Copy each example below and the sentences that go with it. Fill in the missing numbers. Then write the answer on your copy.

- $$\begin{array}{r} 72 \\ +95 \\ \hline \end{array}$$
 First add   ?   and   ?  . Write   ?   in ones place. Then add   ?   and   ?  . Write   ?   in hundreds place and   ?   in tens place.

- $$\begin{array}{r} 167 \\ -92 \\ \hline \end{array}$$
 First take   ?   from   ?  . Write   ?   in ones place. Then take   ?   from   ?  . Write   ?   in tens place.

- $$\begin{array}{r} 2 \\ 5 \\ +9 \\ \hline \end{array}$$
 First see 2 and 5. Think   ?  . Then think   ?   and 9. Write   ?   in the answer.

- $$\begin{array}{r} 43 \\ 51 \\ +82 \\ \hline \end{array}$$
 First see 3, 1, and 2. Think 3, 4,   ?  . Write   ?   in ones place. Then see 4, 5, and 8. Think 4, 9,   ?  . Write   ?   in hundreds place and   ?   in tens place.

- Write the addition double that can help you to remember both of these facts:

$$\begin{array}{r} 6 \\ 5 \\ \hline 11 \end{array} \text{ and } \begin{array}{r} 6 \\ 7 \\ \hline 13 \end{array}$$

- Write just the answers. Add 10 to each of these numbers: 1 2 3 4 5 6 7 8 9

- Write just the answers. Subtract 10 from each of these numbers: 11 13 15 17 19

Page

135

130

133

141

142

136

138

138

147



## Finding Out What You Know



### A. Word Meanings

Copy the number of each sentence. Write beside each number the word that is missing in that sentence. It is one of the four words under the sentence.

1. The long hand on a clock is the \_\_\_\_\_ hand.  

*hour*
*minute*
*day*
*week*
2. The first day of the week is \_\_\_\_\_.  

*Tuesday*
*Saturday*
*Monday*
*Sunday*
3. P.M. means \_\_\_\_\_.  

*midnight*
*noon*
*afternoon*
*morning*
4. A year has \_\_\_\_\_ months.  

*seven*
*ten*
*six*
*twelve*
5. The Roman numeral for \_\_\_\_\_ is VI.  

*four*
*six*
*nine*
*eleven*
6. A pound has \_\_\_\_\_ ounces.  

*two*
*four*
*eight*
*sixteen*

### B. Arithmetic Understandings

Copy the sentences and write in the missing words. Choose the words from this list.

<i>tens</i>	<i>ones</i>	<i>hundreds</i>
<i>quarters</i>	<i>cents</i>	<i>dollars</i>

1. A dollar is worth the same as 4 \_\_\_\_\_.
2. A dime and 4 pennies are worth 14 \_\_\_\_\_.
3. In 305 the zero means no \_\_\_\_\_.
4. \$4.30 is read 4 \_\_\_\_\_ and 30 \_\_\_\_\_.
5. The number 243 may mean 2 \_\_\_\_\_ 4 \_\_\_\_\_ 3 \_\_\_\_\_.
6. The number 243 may also mean 24 \_\_\_\_\_ 3 \_\_\_\_\_.

### C. Number Facts and Skills

Copy each example. Write and check each answer.

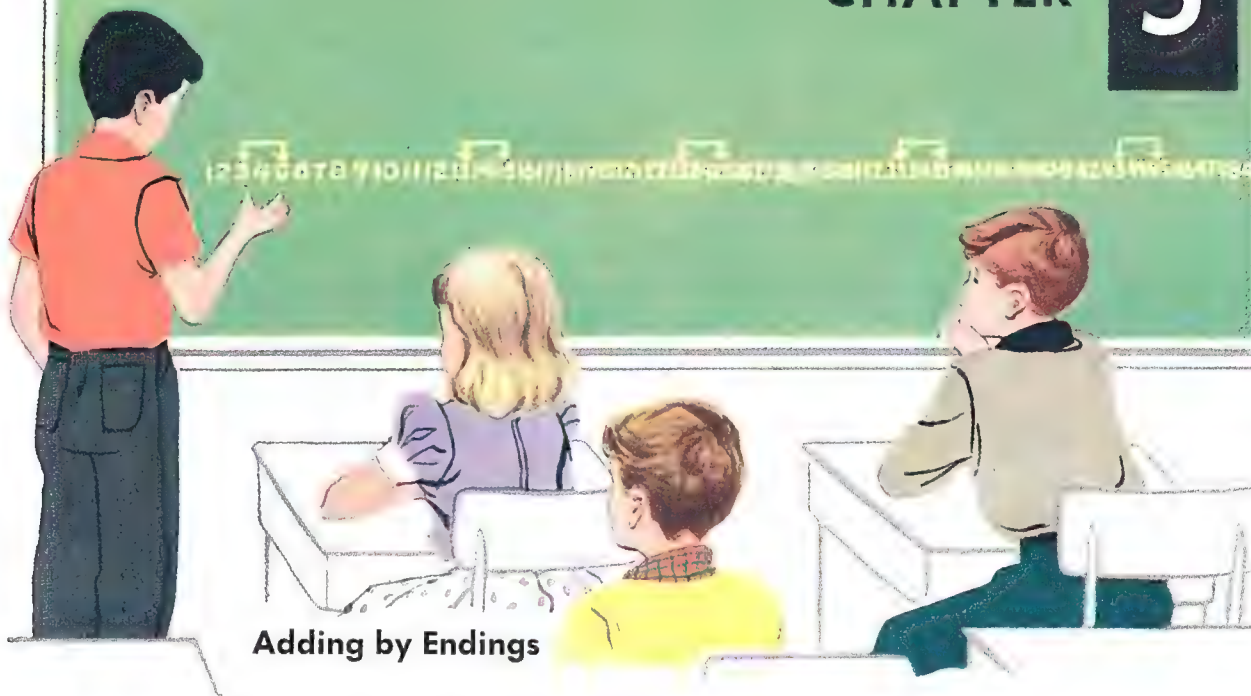
- |    |  |    |   |    |   |    |  |    |  |    |   |
|----|--|----|---|----|---|----|--|----|--|----|---|
| 1. | $\begin{array}{r} \$1.52 \\ - .70 \\ \hline \end{array}$ | 2. | $\begin{array}{r} \$.63 \\ + .94 \\ \hline \end{array}$ | 3. | $\begin{array}{r} \$.60 \\ + .40 \\ \hline \end{array}$ | 4. | $\begin{array}{r} 53 \\ 43 \\ +32 \\ \hline \end{array}$ | 5. | $\begin{array}{r} 32 \\ 54 \\ +21 \\ \hline \end{array}$ | 6. | $\begin{array}{r} 179 \\ -53 \\ \hline \end{array}$ |
|----|--|----|---|----|---|----|--|----|--|----|---|

### D. Problem Solving

Below each problem you will find three ways to solve it. Only one of the ways is right. Copy the sentence that tells the right way. Then solve the problem.

- Bob put \$.35 in his bank. Then he put in \$.70. How much money did Bob put in his bank?
  - Add \$.35 and \$.70.
  - Subtract \$.35 from \$.70.
  - Subtract \$.70 from \$.35.
- How much money did Ruth lose? She had 15 pennies in her pocket. Now she has only 9 pennies.
  - Subtract 15¢ from 9¢.
  - Add 15¢ and 9¢.
  - Subtract 9¢ from 15¢.
- Dick has 140 cards. Ted has 80. Dick has how many more cards than Ted?
  - Add 140 and 80.
  - Subtract 80 from 140.
  - Subtract 140 from 80.
- Ann has 75 buttons in her collection and Sue has 50. Together Ann and Sue have how many buttons?
  - Subtract 50 from 75.
  - Subtract 75 from 50.
  - Add 75 and 50.





### Adding by Endings



$$\begin{array}{r} 3 \\ +2 \\ \hline 5 \end{array}$$

1. Dick has 3 red pencils and 2 blue pencils. How many pencils does he have in all?  $3 + 2 = \underline{\quad ? \quad}$

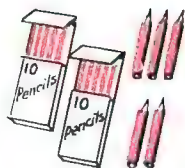
Dick could use the number line to find  $3 + 2$ . If he put his finger on 3 and counted 2 more he would come to  $\underline{\quad ? \quad}$ .



$$\begin{array}{r} 13 \\ +2 \\ \hline 15 \end{array}$$

2. Dick bought 10 more red pencils. How many red pencils did he have then? With his 2 blue pencils, how many pencils did he have in all?  $13 + 2 = \underline{\quad ? \quad}$

Dick put his finger on 13 on the number line and counted 2 more. He stopped at  $\underline{\quad ? \quad}$ . What figures are alike in  $3 + 2$  and  $13 + 2$ ?



$$\begin{array}{r} 23 \\ +2 \\ \hline 25 \end{array}$$

3. Ruth gave Dick another box of 10 red pencils. How many red pencils did he have then? With his 2 blue pencils, how many pencils did he have in all?  $23 + 2 = \underline{\quad ? \quad}$  How could Dick show this on the number line?

# Adding and Subtracting by Endings

4. What figures are alike in  $3 + 2$ ,  $13 + 2$ , and  $23 + 2$ ?  
If 2 is added to any number ending in 3 the answer will end in   ?  . How much is  $33 + 2$ ?  $43 + 2$ ?  $73 + 2$ ?  
Use the number line to help you do these additions:

5.

$\begin{array}{r} 1 \\ 2 \\ \hline \end{array}$	$\begin{array}{r} 11 \\ 2 \\ \hline \end{array}$	$\begin{array}{r} 21 \\ 2 \\ \hline \end{array}$	$\begin{array}{r} 31 \\ 2 \\ \hline \end{array}$
---	--	--	--

If 2 is added to any number ending in 1 the answer will end in   ?  .

Use the number line to help you do these additions:

6.

$\begin{array}{r} 1 \\ 5 \\ \hline \end{array}$	$\begin{array}{r} 11 \\ 5 \\ \hline \end{array}$	$\begin{array}{r} 21 \\ 5 \\ \hline \end{array}$	$\begin{array}{r} 31 \\ 5 \\ \hline \end{array}$	$\begin{array}{r} 41 \\ 5 \\ \hline \end{array}$	$\begin{array}{r} 61 \\ 5 \\ \hline \end{array}$	$\begin{array}{r} 81 \\ 5 \\ \hline \end{array}$
---	--	--	--	--	--	--

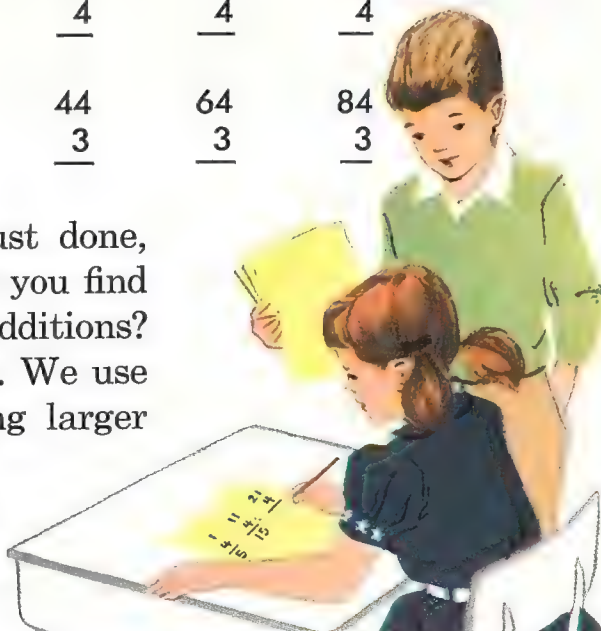
7.

$\begin{array}{r} 2 \\ 4 \\ \hline \end{array}$	$\begin{array}{r} 12 \\ 4 \\ \hline \end{array}$	$\begin{array}{r} 22 \\ 4 \\ \hline \end{array}$	$\begin{array}{r} 32 \\ 4 \\ \hline \end{array}$	$\begin{array}{r} 52 \\ 4 \\ \hline \end{array}$	$\begin{array}{r} 72 \\ 4 \\ \hline \end{array}$	$\begin{array}{r} 92 \\ 4 \\ \hline \end{array}$
---	--	--	--	--	--	--

8.

$\begin{array}{r} 4 \\ 3 \\ \hline \end{array}$	$\begin{array}{r} 14 \\ 3 \\ \hline \end{array}$	$\begin{array}{r} 24 \\ 3 \\ \hline \end{array}$	$\begin{array}{r} 34 \\ 3 \\ \hline \end{array}$	$\begin{array}{r} 44 \\ 3 \\ \hline \end{array}$	$\begin{array}{r} 64 \\ 3 \\ \hline \end{array}$	$\begin{array}{r} 84 \\ 3 \\ \hline \end{array}$
---	--	--	--	--	--	--

9. In the examples you have just done, which fact in each row helped you find the answers to the other additions? These facts are called *key facts*. We use key facts to help us in adding larger numbers. Do you see why?





Add 1 to each number below. Add 2. Add 3. What key fact in each row helps you find the other answers? Check your answers by using the number line.

10. 4            14            24            34            44            64

11. 6            16            26            36            46            76

Copy these key facts in a column. Beside each write three examples which the key fact helps you do.

Ann's score

$$\begin{array}{r} 5 \\ 8 \\ 4 \\ \hline 17 \end{array}$$

12.  $\begin{array}{r} 4 \\ +5 \\ \hline 9 \end{array}$        $\begin{array}{r} 6 \\ +1 \\ \hline 7 \end{array}$        $\begin{array}{r} 2 \\ +7 \\ \hline 9 \end{array}$        $\begin{array}{r} 8 \\ +1 \\ \hline 9 \end{array}$        $\begin{array}{r} 2 \\ +4 \\ \hline 6 \end{array}$        $\begin{array}{r} 5 \\ +3 \\ \hline 8 \end{array}$

### Column Addition

Ruth's class played ringtoss. Ruth kept the scores. She added the points beginning at the top. She added Ann's points, and wrote 17.

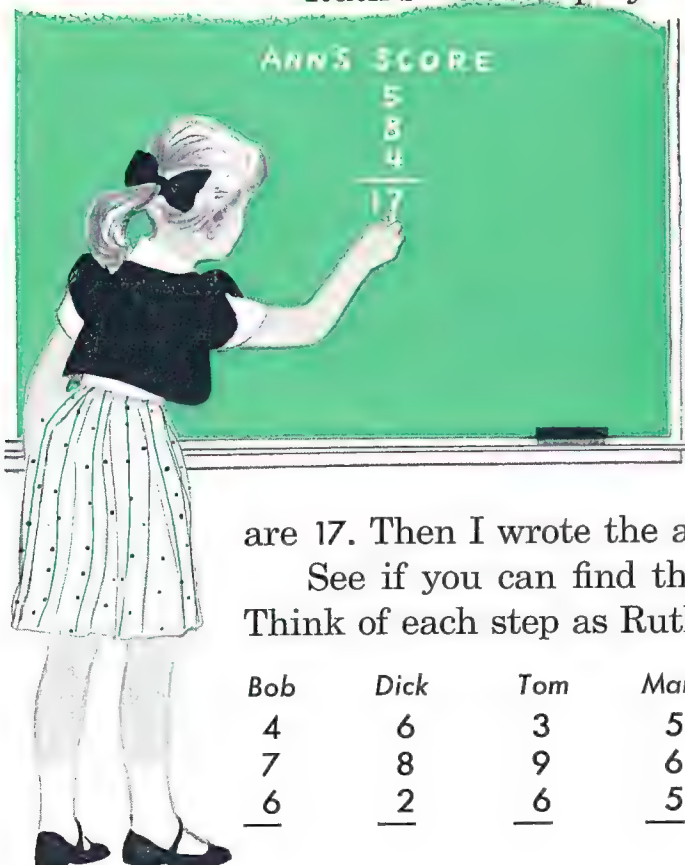
Ruth's teacher said, "Tell us how you got the answer 17."

"I said 5 to myself," Ruth answered. "Then I said 13, because 5 and 8 are 13. Then I said 17, because 13 and 4

are 17. Then I wrote the answer, 17."

See if you can find the scores of the other children. Think of each step as Ruth did. Add down.

Bob	Dick	Tom	Mary	Sue	Jim	Jane	Joe
4	6	3	5	7	6	9	8
7	8	9	6	6	9	7	7
<u>6</u>	<u>2</u>	<u>6</u>	<u>5</u>	<u>3</u>	<u>4</u>	<u>2</u>	<u>3</u>



## Checking Addition

You have just been adding down. You can also add up. Study the following example done both ways.

$$\begin{array}{r} \text{Adding Down} \\ 6 \text{ Think 6, 15, 18} \\ 9 \\ \underline{3} \text{ Write 18} \\ 18 \end{array}$$

$$\begin{array}{r} \text{Adding Up} \\ 6 \text{ Think 3, 12, 18} \\ 9 \\ \underline{3} \text{ Write 18} \\ 18 \end{array}$$

When you get the same answer two ways in addition, you have *checked* your answer.

Add down. Check by adding up.

### Practice to Remember

Copy each example. Add down. Check by adding up.

1.  $\begin{array}{r} 2 \\ 8 \\ \underline{7} \end{array}$   $\begin{array}{r} 6 \\ 6 \\ \underline{5} \end{array}$   $\begin{array}{r} 9 \\ 5 \\ \underline{3} \end{array}$   $\begin{array}{r} 5 \\ 5 \\ \underline{6} \end{array}$   $\begin{array}{r} 7 \\ 5 \\ \underline{4} \end{array}$   $\begin{array}{r} 3 \\ 8 \\ \underline{7} \end{array}$   $\begin{array}{r} 7 \\ 7 \\ \underline{4} \end{array}$   $\begin{array}{r} 8 \\ 7 \\ \underline{2} \end{array}$   $\begin{array}{r} 9 \\ 7 \\ \underline{3} \end{array}$   $\begin{array}{r} 8 \\ 8 \\ \underline{2} \end{array}$

2.  $\begin{array}{r} 9 \\ 8 \\ \underline{1} \end{array}$   $\begin{array}{r} 7 \\ 4 \\ \underline{8} \end{array}$   $\begin{array}{r} 7 \\ 8 \\ \underline{1} \end{array}$   $\begin{array}{r} 9 \\ 2 \\ \underline{4} \end{array}$   $\begin{array}{r} 9 \\ 6 \\ \underline{3} \end{array}$   $\begin{array}{r} 2 \\ 9 \\ \underline{3} \end{array}$   $\begin{array}{r} 8 \\ 6 \\ \underline{3} \end{array}$   $\begin{array}{r} 8 \\ 4 \\ \underline{1} \end{array}$   $\begin{array}{r} 9 \\ 4 \\ \underline{1} \end{array}$   $\begin{array}{r} 7 \\ 9 \\ \underline{3} \end{array}$

3. Add 2 to each of the following numbers:  
7 17 27 37 47 57 67 77 87 97

4. Add 3 to each of the following numbers:  
2 12 22 32 42 52 62 72 82 92

5. Add 4 to each of the following numbers:  
3 13 23 33 43 53 63 73 83 93

6. Add 5 to each of the following numbers:  
4 14 24 34 44 54 64 74 84 94





### At an Auction

Read each problem carefully. Solve it and check.

1. Joan and her mother went to an auction in the country. When they had driven 45 miles, Joan saw a sign. The sign read, "Auction 4 miles." How far was the auction from Joan's home?
2. Joan's mother bought 12 pink plates at the auction. Then she bought 6 more. How many plates did she buy?
3. In the morning 51 small pictures were sold at the auction. In the afternoon 8 more were sold. How many pictures were sold during the day?
4. Joan paid 73¢ for one picture and only 5¢ for another. The two pictures together cost how much?
5. A man bought a chest of tools for \$15 and a lamp for \$2. He spent how much for both?
6. A lady bought 20 small silver spoons and 8 large ones. How many spoons in all did she buy?
7. Joan bought a string of beads. There were 8 red beads on the string, 5 yellow beads, and 4 blue beads. How many beads in all were on the string?





## On a Big Farm

ADDING BY ENDINGS IN TENS  
COLUMN

Last spring, Bob visited a big farm. The farmer had planted 60 rows of beans, 75 rows of peas, and 54 rows of corn. How many rows did this make all together?



How do you know that you should add in this problem?

Study the following example. Say each missing number. First add the ones. Think 0, 5, ? Write ? in ones place.

Then add the tens. Think 6, 13, ? 18 tens = ? hundreds ? tens. Write ? in tens place and ? in hundreds place.

60
75
54
<hr/>
189

The farmer and his men planted ? rows.

Solve each problem. Check your answer.

- Bob gathered eggs each day. He gathered 50 eggs on Monday, 61 on Tuesday, and 48 on Wednesday. How many eggs did he gather in the three days?
- Bob went to the village store. He bought a knife for \$.75, a cap for \$.50, and some fishhooks for \$.10. How much did Bob spend in all?

Copy each example. Add down. Check by adding up.

- |           |           |           |           |            |            |            |            |
|-----------|-----------|-----------|-----------|------------|------------|------------|------------|
| 66        | 53        | 48        | 74        | \$.92      | \$.82      | \$.34      | \$.82      |
| 80        | 71        | 91        | 83        | .74        | .55        | .90        | .93        |
| <u>23</u> | <u>34</u> | <u>30</u> | <u>22</u> | <u>.32</u> | <u>.40</u> | <u>.65</u> | <u>.21</u> |
- |           |           |           |           |            |            |            |            |
|-----------|-----------|-----------|-----------|------------|------------|------------|------------|
| 60        | 82        | 90        | 61        | \$.91      | \$.12      | \$.51      | \$.86      |
| 43        | 37        | 41        | 57        | .35        | .91        | .84        | .61        |
| <u>56</u> | <u>70</u> | <u>24</u> | <u>80</u> | <u>.72</u> | <u>.73</u> | <u>.13</u> | <u>.41</u> |





## Going by Plane

ADDING THREE-PLACE NUMBERS

On vacation Jim will visit his uncle. He will fly all the way. The first part of the trip will be 144 miles. Then Jim will change planes and fly 125 miles more. In all he will fly how far?

Why should you add to answer the question? Study the following

example. Say each missing number.

$$\begin{array}{r} 144 \\ + 125 \\ \hline 269 \end{array}$$

Add the ones.  $4 + 5 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in ones place.

Then add the tens.  $4 + 2 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in tens place.

Now add the hundreds.  $1 + 1 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in hundreds place.

In all, Jim will fly  $\underline{\quad ? \quad}$  miles.

Solve each problem. Think each time why you add.

1. On vacation Ruth flew 312 miles in one plane and 206 miles in another. How far did she fly?
2. Dick went 210 miles by plane and 154 miles by train. How far did he go on the whole trip?
3. Joan flew 500 miles without a stop. Coming back, her plane flew 285 miles and then landed. How far in all had Joan flown then?

Copy each example, add, and check.

4.  $\begin{array}{r} 121 \\ 720 \\ \hline \end{array}$      $\begin{array}{r} 241 \\ 742 \\ \hline \end{array}$      $\begin{array}{r} 143 \\ 555 \\ \hline \end{array}$      $\begin{array}{r} 607 \\ 370 \\ \hline \end{array}$      $\begin{array}{r} 140 \\ 329 \\ \hline \end{array}$      $\begin{array}{r} 122 \\ 450 \\ \hline \end{array}$      $\begin{array}{r} 500 \\ 320 \\ \hline \end{array}$      $\begin{array}{r} 203 \\ 366 \\ \hline \end{array}$
5.  $\begin{array}{r} 735 \\ 104 \\ \hline \end{array}$      $\begin{array}{r} 346 \\ 412 \\ \hline \end{array}$      $\begin{array}{r} 106 \\ 611 \\ \hline \end{array}$      $\begin{array}{r} 531 \\ 118 \\ \hline \end{array}$      $\begin{array}{r} 419 \\ 310 \\ \hline \end{array}$      $\begin{array}{r} 876 \\ 120 \\ \hline \end{array}$      $\begin{array}{r} 284 \\ 400 \\ \hline \end{array}$      $\begin{array}{r} 125 \\ 700 \\ \hline \end{array}$

## Adding Dollars and Cents

Tony bought a book for \$1.35. A week later he bought another book for \$1.20. What was the total cost of the two books?

The *total cost* is the money Tony spent for the two books, so you find the answer by adding \$1.35 and \$1.20.

Study the example. Add as if there were no dollar signs or decimal points. Begin with the figures at the right. Say each missing number.

$5 + 0 = \underline{\quad ? \quad}$	Write $\underline{\quad ? \quad}$	135
$3 + 2 = \underline{\quad ? \quad}$	Write $\underline{\quad ? \quad}$	120
$1 + 1 = \underline{\quad ? \quad}$	Write $\underline{\quad ? \quad}$	255

\$ 1.35
+ 1.20
<hr/>
\$ 2.55

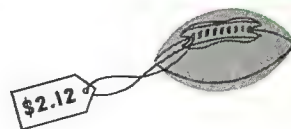
Now put in the dollar signs and decimal points. Why?  
The total cost of the two books is  $\underline{\quad ? \quad}$ .

Copy each example. Add. Check by going over your work. Remember to put a dollar sign and a decimal point in each answer.

1. $\begin{array}{r} \$5.14 \\ 2.25 \\ \hline \end{array}$	$\begin{array}{r} \$6.30 \\ 3.54 \\ \hline \end{array}$	$\begin{array}{r} \$1.32 \\ 5.15 \\ \hline \end{array}$	$\begin{array}{r} \$1.02 \\ 8.12 \\ \hline \end{array}$	$\begin{array}{r} \$7.60 \\ 1.20 \\ \hline \end{array}$
2. $\begin{array}{r} \$1.37 \\ 4.60 \\ \hline \end{array}$	$\begin{array}{r} \$3.45 \\ 4.23 \\ \hline \end{array}$	$\begin{array}{r} \$2.13 \\ 6.30 \\ \hline \end{array}$	$\begin{array}{r} \$5.64 \\ 4.13 \\ \hline \end{array}$	$\begin{array}{r} \$2.03 \\ 3.93 \\ \hline \end{array}$

Solve each problem. Think each time why you should add. Check your answers.

- Tom bought some camp shoes for \$2.40 and a sweater for \$4.45. What was the total cost of these things?
- Alice's mother spent \$4.15 for groceries and \$1.61 for meat. What was the total cost of these things?
- Jack bought a football for \$2.12 and a football suit for \$7.71. What was the total cost of these things?





$$\begin{array}{r} 5 \\ -2 \\ \hline 3 \end{array}$$



$$\begin{array}{r} 15 \\ -2 \\ \hline 13 \end{array}$$

$$\begin{array}{r} 25 \\ -2 \\ \hline ? \end{array}$$

## Subtracting by Endings

Kay had 5 pencils in all, 3 red ones and 2 blue ones. She gave Sue 2 blue pencils. How many pencils did Kay have left?

$$5 - 2 = \underline{\quad?}$$

What figures are alike in  $5 - 2$ ,  $15 - 2$ , and  $25 - 2$ ? What key fact helps you in finding the answer to  $15 - 2$ ? to  $25 - 2$ ?

If you take 2 from any number ending in 5, the answer will end in 3.

1. Subtract 2 from each of these numbers:

6    16    26    36    46    56    66    76    86

2. Subtract 1 from each of these numbers:

11    21    31    41    51    61    71    81    91

3. Subtract 3 from each of these numbers:

25    35    45    55    65    75    85    95    15

Copy the examples below, one row at a time, and write the answers. Draw a line under the key fact.

4.     $\begin{array}{r} 9 \\ -5 \\ \hline \end{array}$      $\begin{array}{r} 19 \\ -5 \\ \hline \end{array}$      $\begin{array}{r} 39 \\ -5 \\ \hline \end{array}$      $\begin{array}{r} 59 \\ -5 \\ \hline \end{array}$      $\begin{array}{r} 79 \\ -5 \\ \hline \end{array}$      $\begin{array}{r} 29 \\ -5 \\ \hline \end{array}$      $\begin{array}{r} 49 \\ -5 \\ \hline \end{array}$      $\begin{array}{r} 99 \\ -5 \\ \hline \end{array}$      $\begin{array}{r} 69 \\ -5 \\ \hline \end{array}$

5.     $\begin{array}{r} 8 \\ -6 \\ \hline \end{array}$      $\begin{array}{r} 38 \\ -6 \\ \hline \end{array}$      $\begin{array}{r} 68 \\ -6 \\ \hline \end{array}$      $\begin{array}{r} 88 \\ -6 \\ \hline \end{array}$      $\begin{array}{r} 98 \\ -6 \\ \hline \end{array}$      $\begin{array}{r} 28 \\ -6 \\ \hline \end{array}$      $\begin{array}{r} 48 \\ -6 \\ \hline \end{array}$      $\begin{array}{r} 78 \\ -6 \\ \hline \end{array}$      $\begin{array}{r} 58 \\ -6 \\ \hline \end{array}$

6.     $\begin{array}{r} 7 \\ -4 \\ \hline \end{array}$      $\begin{array}{r} 27 \\ -4 \\ \hline \end{array}$      $\begin{array}{r} 37 \\ -4 \\ \hline \end{array}$      $\begin{array}{r} 57 \\ -4 \\ \hline \end{array}$      $\begin{array}{r} 77 \\ -4 \\ \hline \end{array}$      $\begin{array}{r} 47 \\ -4 \\ \hline \end{array}$      $\begin{array}{r} 67 \\ -4 \\ \hline \end{array}$      $\begin{array}{r} 87 \\ -4 \\ \hline \end{array}$      $\begin{array}{r} 97 \\ -4 \\ \hline \end{array}$

## Subtracting Three-Place Numbers

Ruth and Dick are looking at their stamp collections. Ruth has 269 stamps. Dick has 125. Who has fewer? How many fewer? To find out, would you add or subtract?



Study the example. Say each missing number.

First subtract the ones.  $9 - 5 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in ones place.

Then subtract the tens.  $6 - 2 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in tens place.

Then subtract the hundreds.  $2 - 1 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in hundreds place.

Dick has  $\underline{\quad ? \quad}$  stamps fewer than Ruth.

269
125
144

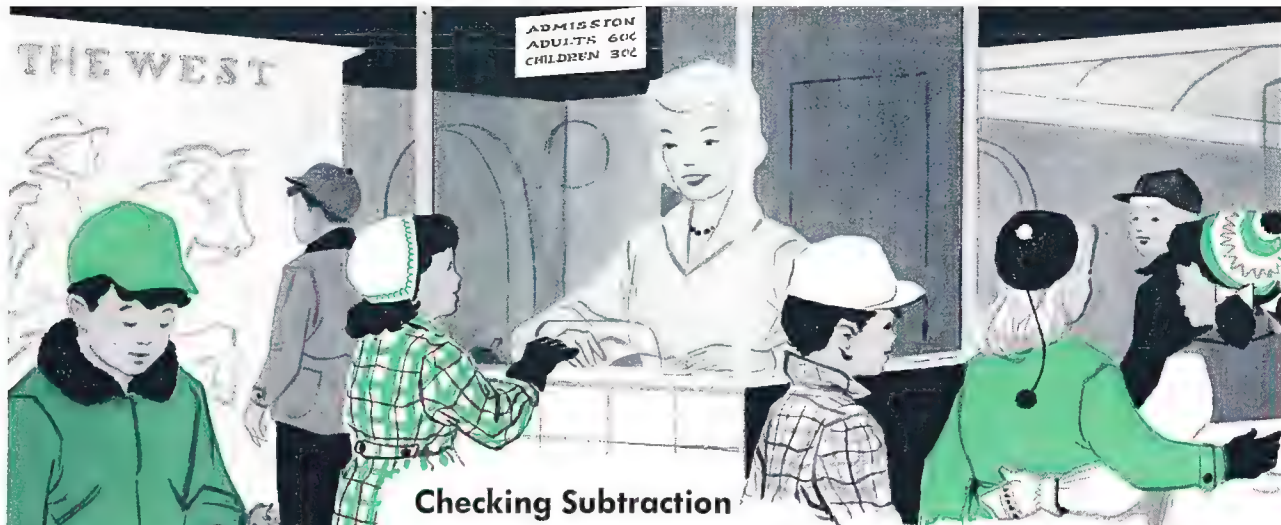
Solve each problem. Think why you should subtract to find the answer. Be sure the answer makes sense.

1. Tom has 399 stamps. Jim has 246. Tom has how many more stamps than Jim?
2. In Ann's school there are 785 children; in Joe's school, only 285. Joe's school has how many fewer children than Ann's school?
3. Most years have 365 days. Joe's school was open 164 days. How many days was it closed during the year?

Copy the examples and subtract.

- |    |   |   |   |   |   |   |   |   |
|----|---|---|---|---|---|---|---|---|
| 4. | $\begin{array}{r} 841 \\ 720 \\ \hline \end{array}$ | $\begin{array}{r} 983 \\ 742 \\ \hline \end{array}$ | $\begin{array}{r} 698 \\ 555 \\ \hline \end{array}$ | $\begin{array}{r} 977 \\ 370 \\ \hline \end{array}$ | $\begin{array}{r} 469 \\ 329 \\ \hline \end{array}$ | $\begin{array}{r} 572 \\ 450 \\ \hline \end{array}$ | $\begin{array}{r} 820 \\ 320 \\ \hline \end{array}$ | $\begin{array}{r} 569 \\ 366 \\ \hline \end{array}$ |
| 5. | $\begin{array}{r} 839 \\ 104 \\ \hline \end{array}$ | $\begin{array}{r} 758 \\ 412 \\ \hline \end{array}$ | $\begin{array}{r} 717 \\ 611 \\ \hline \end{array}$ | $\begin{array}{r} 649 \\ 118 \\ \hline \end{array}$ | $\begin{array}{r} 729 \\ 310 \\ \hline \end{array}$ | $\begin{array}{r} 996 \\ 120 \\ \hline \end{array}$ | $\begin{array}{r} 684 \\ 400 \\ \hline \end{array}$ | $\begin{array}{r} 865 \\ 632 \\ \hline \end{array}$ |





### Checking Subtraction

Fred started for the movies. He counted his money to see if he had enough for a ticket. He counted wrong. When he got to the movie house he could not buy a ticket. He should have counted twice to make sure. *Twice means two times.*

We check answers to help us find mistakes.

Subtraction may be checked in two ways.

The first way to check is to do the example twice to see if we get the same answer. The second way is to add the answer and the number taken away. If we get the number that we had at first, the answer is right. Supposing we did the example  $15 - 8$ , and got 7 for an answer.  $7 + 8 = \underline{\quad ? \quad}$

$\begin{array}{r} 15 \\ -6 \\ \hline 9 \end{array}$	$\begin{array}{r} 47 \\ -25 \\ \hline 22 \end{array}$	$\begin{array}{r} 698 \\ -574 \\ \hline 124 \end{array}$	If $15 - 6 = 9$ , then $9 + 6 = \underline{\quad ? \quad}$ .
			If $47 - 25 = 22$ , then $22 + 25 = \underline{\quad ? \quad}$ .
			If $698 - 574 = 124$ , then $124 + 574 = \underline{\quad ? \quad}$ .

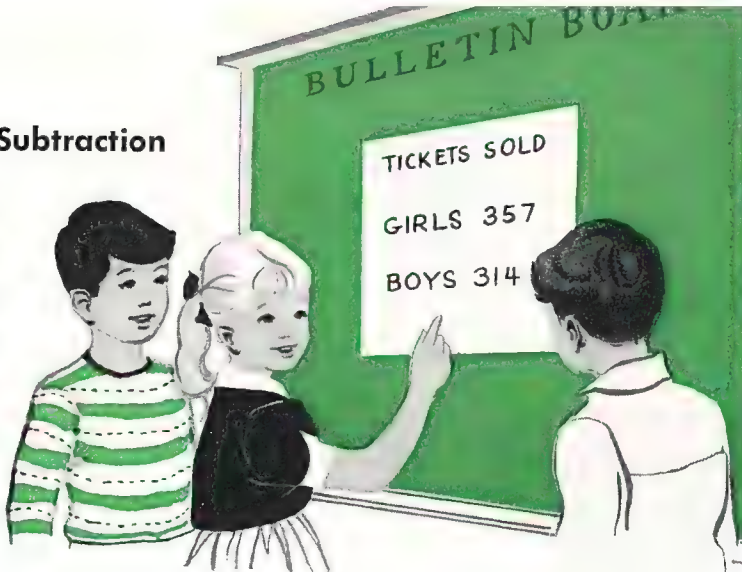
Try this with the following examples:

$\begin{array}{r} 6 \\ -2 \\ \hline 4 \end{array}$	$\begin{array}{r} 2 \\ +4 \\ \hline ? \end{array}$	$\begin{array}{r} 37 \\ -14 \\ \hline 23 \end{array}$	$\begin{array}{r} 14 \\ +23 \\ \hline ? \end{array}$	$\begin{array}{r} 94 \\ -51 \\ \hline 43 \end{array}$	$\begin{array}{r} 51 \\ +43 \\ \hline ? \end{array}$	$\begin{array}{r} 126 \\ -83 \\ \hline 43 \end{array}$	$\begin{array}{r} 83 \\ +43 \\ \hline ? \end{array}$	$\begin{array}{r} 469 \\ -235 \\ \hline 234 \end{array}$	$\begin{array}{r} 234 \\ +235 \\ \hline ? \end{array}$
--	--	---	--	---	--	--	--	--	--

## Written and Unwritten Zeros in Subtraction

Ann's school will give a play. The girls have sold 357 tickets. The boys have sold 314 tickets. How many more tickets must the boys sell to catch up with the girls?

Is this an addition or a subtraction problem? How can you tell?



Study the example. Say each missing number.

First think  $7 - 4 = ?$  Write  $?$  in ones place. Then think  $5 - 1 = ?$  Write  $?$  in tens place. Then think  $3 - 3 = 0$  Do *not* write the zero in hundreds place. It is not needed. Why?

$$\begin{array}{r} 357 \\ -314 \\ \hline 43 \end{array}$$

The boys must sell  $?$  more tickets to catch up with the girls.

Copy each example and subtract. Check by adding.

$$\begin{array}{r} 1. \quad 496 \quad 278 \quad 951 \quad 569 \quad 788 \quad 132 \quad 845 \\ \quad \underline{432} \quad \underline{226} \quad \underline{920} \quad \underline{551} \quad \underline{752} \quad \underline{121} \quad \underline{823} \end{array}$$

In the following row, each answer is a one-place number. Do *not* write the zeros in tens and hundreds places. Why?

$$\begin{array}{r} 2. \quad 147 \quad 325 \quad 878 \quad 696 \quad 539 \quad 243 \quad 908 \\ \quad \underline{143} \quad \underline{320} \quad \underline{873} \quad \underline{691} \quad \underline{537} \quad \underline{240} \quad \underline{905} \end{array}$$

In the following row, some zeros in the answers are needed and some are not needed. Be sure to write only the needed zeros.

$$\begin{array}{r} 3. \quad 543 \quad 280 \quad 397 \quad 604 \quad 115 \quad 978 \quad 832 \quad 756 \\ \quad \underline{503} \quad \underline{180} \quad \underline{327} \quad \underline{501} \quad \underline{102} \quad \underline{878} \quad \underline{230} \quad \underline{740} \end{array}$$



$$\begin{array}{r} \$4.56 \\ -1.20 \\ \hline \$3.36 \end{array}$$

## Subtracting Dollars and Cents

Jane went to visit her aunt. She had \$4.56 in her bag. She paid \$1.20 for her bus ticket. How much money did she have left?

How do you find the number left: by adding or by subtracting?

Study the example. Subtract as if there were no dollar signs or decimal points. Begin with the figures at the right. Say each missing number.

$$\begin{array}{rcl} 6 - 0 = \underline{\quad ? \quad} & \text{Write } \underline{\quad ? \quad} & 456 \\ 5 - 2 = \underline{\quad ? \quad} & \text{Write } \underline{\quad ? \quad} & -120 \\ 4 - 1 = \underline{\quad ? \quad} & \text{Write } \underline{\quad ? \quad} & \hline & & 336 \end{array}$$

Now put in the decimal point and the dollar sign.

Jane had   ?   left.

Solve each problem. Think why you should subtract. Be sure each answer makes sense.

1. Jack had \$5.95 in his bank. Jim had \$4.60. Jim had how much less than Jack in his bank?
2. Kay's red dress cost \$8.69 and her blue dress cost \$4.27. Which dress cost more? How much more?
3. Ann wants a dollhouse that costs \$5.68. She has saved \$3.16. How much more money does she need?

Copy each example and subtract. Write zeros in your answers only where they are needed.

4.	$\begin{array}{r} \$7.39 \\ \underline{2.25} \end{array}$	$\begin{array}{r} \$9.84 \\ \underline{3.54} \end{array}$	$\begin{array}{r} \$6.47 \\ \underline{5.15} \end{array}$	$\begin{array}{r} \$9.14 \\ \underline{8.12} \end{array}$	$\begin{array}{r} \$8.80 \\ \underline{1.20} \end{array}$	$\begin{array}{r} \$9.72 \\ \underline{4.71} \end{array}$
5.	$\begin{array}{r} \$5.67 \\ \underline{5.30} \end{array}$	$\begin{array}{r} \$3.17 \\ \underline{3.04} \end{array}$	$\begin{array}{r} \$8.34 \\ \underline{8.13} \end{array}$	$\begin{array}{r} \$7.79 \\ \underline{6.19} \end{array}$	$\begin{array}{r} \$6.28 \\ \underline{6.23} \end{array}$	$\begin{array}{r} \$5.69 \\ \underline{5.42} \end{array}$

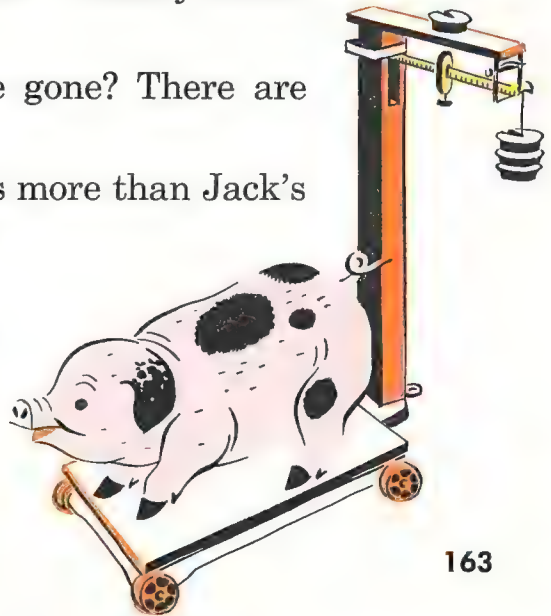


## What Shall I Do, Add or Subtract?

The question gives a hint to you.  
It almost tells you what to do.

In each of the following problems the question is put first. See if you can find in the question the *hint* that tells you whether to add or subtract. Then read the rest of the problem and solve it.

1. How much more money does Tom need to buy a baseball that costs \$1.25? Tom has \$.75.
2. Ann paid how much less than Betty for a doll? Betty paid \$1.10 for her doll. Ann paid \$.90 for hers.
3. How much in all did Dick spend for a baseball and bat? The baseball cost \$1.25. The bat cost \$1.10.
4. How many tickets were sold in three days by the children in Kay's room? They sold 50 on Monday, 75 on Tuesday, and 64 on Wednesday.
5. What will be the total cost of two books? One book costs \$1.69. The other costs \$1.30.
6. How many days of the year are left? Already 160 of the 365 days have gone.
7. How many days of the year have gone? There are 245 of the 365 days left.
8. Jim's pig weighs how many pounds more than Jack's pig? Jim's pig weighs 470 pounds. Jack's weighs 250 pounds.
9. How many fewer pennies are in Sue's bank than in Joan's bank? In Joan's bank there are 176 pennies and in Sue's, 95 pennies.





## Column Addition of Three-Place Numbers

Sam's school had three visiting days in November. On the first day 112 visitors came, on the second day, 123, and on the third day, 140. How many visitors came in all?

Why should you add to find the answer? Study the example. Say each missing number.

$$\begin{array}{r} 112 \\ 123 \\ 140 \\ \hline 375 \end{array}$$

First add the ones. See 2, 3, and 0. Think 2, 5,    ? Write    ? in ones place.

Then add the tens. See 1, 2, and 4. Think 1, 3,    ? Write    ? in tens place.

Then add the hundreds. See 1, 1, and 1. Think 1, 2,    ? Write    ? in hundreds place.

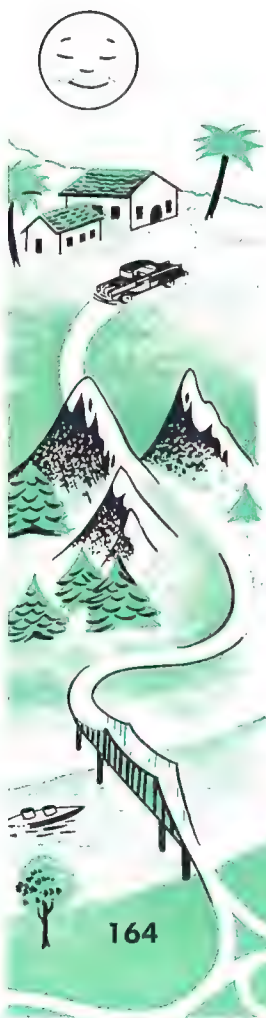
There were    ? visitors in all.

Copy each example and add twice. See if you get the same answer both times.

- |    |            |            |            |            |            |            |            |            |
|----|------------|------------|------------|------------|------------|------------|------------|------------|
| 1. | 123        | 102        | 103        | 625        | 304        | 451        | 320        | 103        |
|    | 321        | 504        | 620        | 103        | 210        | 420        | 363        | 464        |
|    | <u>321</u> | <u>352</u> | <u>175</u> | <u>250</u> | <u>175</u> | <u>108</u> | <u>106</u> | <u>402</u> |

Solve the following problems. Think each time why you should add. Check your answers.

- Judy and her family took a trip at Christmas time. The first day they drove 250 miles, the second day, 235 miles, and the third day, 304 miles. How far did they go in the three days?
- Dick and his father went fishing in the mountains. They flew 435 miles, took a train for 223 miles, and then went 110 miles in a "Drive Yourself" car. How far did they go all together to fish?



## Adding One-, Two-, and Three-Place Numbers

Kay visited a friend during her Christmas vacation. She went 214 miles by plane, 31 miles by train, and 3 miles by bus. How far did she go to visit her friend?

Should you add to find the answer? Why? Study the example. Say each missing number.

First add the ones. See 4, 1, and 3. Think 4, 5,   ?   Write   ?   in ones place.

Then add the tens. See 1 and 3. Think 1,   ?   Write   ?   in tens place.

Then add the hundreds. See   ?   Write   ?   in hundreds place.

Kay went   ?   miles to visit her friend.

Solve these problems.

1. Bob had 430 stamps. Later he bought 101 stamps from Ted. That same day a letter came from his uncle in Canada with 3 stamps on it. How many stamps in all did Bob have then?
2. Ann's mother bought a used car. It had gone 931 miles. She drove it 7 miles to get home. Then the family went for a ride of 21 miles. At the end of the ride, how far had the car gone since it was new?

Copy each example below. Keep the ones, tens, and hundreds in line. Add down. Check by adding up.

3.	101	352	32	36	458	831	523
	44	320	247	1	30	25	5
	<u>  4  </u>	<u>  15  </u>	<u>  600  </u>	<u>  962  </u>	<u>  1  </u>	<u>  12  </u>	<u>  40  </u>

4.	106	41	1	4	20	4	12
	850	801	82	54	24	25	360
	<u>  33  </u>	<u>  3  </u>	<u>  211  </u>	<u>  700  </u>	<u>  123  </u>	<u>  650  </u>	<u>  1  </u>

214
31
<u>  3  </u>
248



\$1.60
.11
.08
<hr/>
\$1.79

## Adding Cents, and Dollars and Cents

Bill went to the circus. He spent \$1.60 for a seat in the big tent, \$.11 for a clown ring, and \$.08 for a bottle of pop. How much did he spend in all for these things?

Study the example. Add as if there were no decimal points or dollar signs. Begin with the figures at the right. Say each missing number.

See 0, 1, and 8. Think 0, 1, ? Write ?

See 6, 1, 0. Think 6, 7, ? Write ? See 1 Write ?

Now put in the dollar sign and decimal point.

Bill spent ? all together at the circus.

1. Betty's aunt gave her \$5.00 to put in her new bank. The next week Betty put in \$.75 more and the following week, \$1.20 more. How much was then in her bank?
2. Jack was saving for a fishing rod. One week he saved \$.45. The next week he saved \$.30 and the following week, \$1.10. How much had he then saved?

Copy each example. Keep the figures of each place in line. Keep the decimal points in line. Add twice. Remember to put the dollar sign and decimal point in the answer.

- |    |             |            |             |             |            |
|----|-------------|------------|-------------|-------------|------------|
| 3. | \$5.72      | \$ .31     | \$7.43      | \$ .04      | \$1.02     |
|    | .03         | 4.65       | 2.53        | .41         | 2.52       |
|    | <u>3.10</u> | <u>.02</u> | <u>.03</u>  | <u>9.14</u> | <u>.20</u> |
| 4. | \$2.16      | \$1.32     | \$4.11      | \$ .05      | \$ .60     |
|    | .70         | 8.01       | .13         | 6.00        | 8.20       |
|    | <u>7.01</u> | <u>.54</u> | <u>3.52</u> | <u>3.01</u> | <u>.10</u> |

## Subtracting Cents from Dollars and Cents

Sam had \$8.75 in his toy bank. He took out \$.50 to buy a cap. How much money was left in his bank?

Study the example below. Subtract as if there were no dollar signs or decimal points. Begin with the figures at the right. Say each missing number.

Think  $5 - 0 = ?$  Write  $?$  Think  $7 - 5 = ?$  Write  $?$  There is no number to subtract from 8. Write  $?$

Now put in the dollar sign and decimal point.

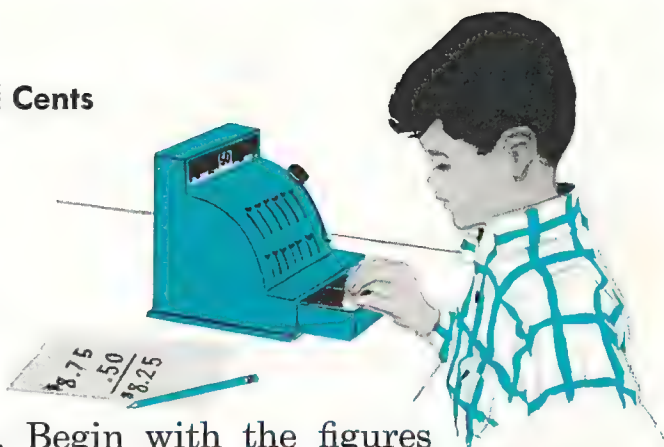
Sam had  $?$  left in his bank.

Solve the following problems. In each think why you should subtract to get the answer.

- Joan had \$1.95 when she went to the store. She spent \$.75 for some cloth for doll's dresses. How much money did she have left then?
- Ted lost some money on the way to school. He had \$1.35 when he left home and only \$.30 when he got to school. How much money did he lose?

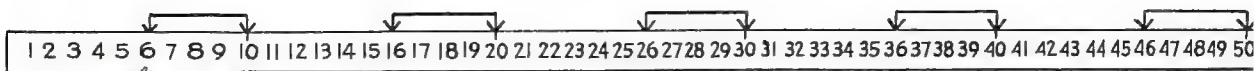
Copy each example and subtract. Remember to put the dollar sign and decimal point in the answer. Check by adding.

- |   |  |  |  |  |
|---|--|--|--|--|
| 3. $\begin{array}{r} \$4.98 \\ \underline{.72} \end{array}$ | $\begin{array}{r} \$6.73 \\ \underline{.31} \end{array}$ | $\begin{array}{r} \$1.80 \\ \underline{.50} \end{array}$ | $\begin{array}{r} \$7.59 \\ \underline{.53} \end{array}$ | $\begin{array}{r} \$2.45 \\ \underline{.15} \end{array}$ |
| 4. $\begin{array}{r} \$3.69 \\ \underline{.25} \end{array}$ | $\begin{array}{r} \$5.31 \\ \underline{.10} \end{array}$ | $\begin{array}{r} \$8.24 \\ \underline{.14} \end{array}$ | $\begin{array}{r} \$9.16 \\ \underline{.15} \end{array}$ | $\begin{array}{r} \$7.05 \\ \underline{.04} \end{array}$ |



\$8.75
– .50
—
\$8.25





## Adding on a Number Line

The number line on this page will help you to understand adding.

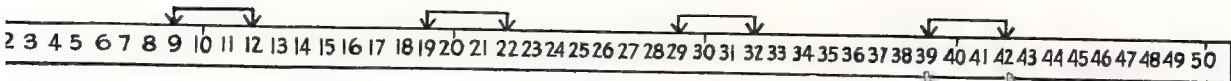
To add 6 and 4, put your finger on 6 and count 4 more. This brings you to 10.  $6 + 4 = 10$ , or 1 ten. Do the same with  $16 + 4$ .  $16 + 4 = 20$ , or 2 tens.  $26 + 4 = 30$ , or 3 tens.  $36 + 4 = 40$ , or 4 tens.

Use the number line to find and say each missing number in the following examples.

1.  $6 + 5 = \underline{\quad ? \quad}$ , or 1 ten and 1 more  
 $16 + 5 = \underline{\quad ? \quad}$ , or  $\underline{\quad ? \quad}$  tens and  $\underline{\quad ? \quad}$  more  
 $26 + 5 = \underline{\quad ? \quad}$ , or  $\underline{\quad ? \quad}$  tens and  $\underline{\quad ? \quad}$  more  
 $36 + 5 = \underline{\quad ? \quad}$ , or  $\underline{\quad ? \quad}$  tens and  $\underline{\quad ? \quad}$  more
2.  $6 + 6 = \underline{\quad ? \quad}$ , or  $\underline{\quad ? \quad}$  ten and  $\underline{\quad ? \quad}$  more  
 $16 + 6 = \underline{\quad ? \quad}$ , or  $\underline{\quad ? \quad}$  tens and  $\underline{\quad ? \quad}$  more  
 $26 + 6 = \underline{\quad ? \quad}$ , or  $\underline{\quad ? \quad}$  tens and  $\underline{\quad ? \quad}$  more  
 $36 + 6 = \underline{\quad ? \quad}$ , or  $\underline{\quad ? \quad}$  tens and  $\underline{\quad ? \quad}$  more
3.  $6 + 7 = \underline{\quad ? \quad}$     $16 + 7 = \underline{\quad ? \quad}$     $26 + 7 = \underline{\quad ? \quad}$     $36 + 7 = \underline{\quad ? \quad}$

Look back at the examples. See how the numbers go. See how the answers go. How does knowing  $6 + 4 = 10$  help you with  $6 + 5$ ?  $6 + 6$ ?  $6 + 7$ ? How does knowing  $6 + 5 = 11$  help you with  $16 + 5$ ?  $26 + 5$ ?  $36 + 5$ ? Study the other examples and see how knowing one fact will help you with the rest. Then do the next four rows of examples.

- |              |            |            |            |
|--------------|------------|------------|------------|
| 4. $8 + 2 =$ | $18 + 2 =$ | $28 + 2 =$ | $38 + 2 =$ |
| 5. $8 + 3 =$ | $18 + 3 =$ | $28 + 3 =$ | $38 + 3 =$ |
| 6. $8 + 4 =$ | $18 + 4 =$ | $28 + 4 =$ | $38 + 4 =$ |
| 7. $8 + 5 =$ | $18 + 5 =$ | $28 + 5 =$ | $38 + 5 =$ |



Copy these addition examples, and write the answers to the last three. Use the number line to help you if you need it.

8.	$\begin{array}{r} 9 \\ + 3 \\ \hline \end{array}$	$\begin{array}{r} 19 \\ + 3 \\ \hline \end{array}$	$\begin{array}{r} 29 \\ + 3 \\ \hline \end{array}$	$\begin{array}{r} 39 \\ + 3 \\ \hline \end{array}$
	12			

What numbers are alike in all four examples? Did  $9 + 3 = 12$  help you find the answers to the other three? How? Could you say that  $9 + 3 = 12$  is a *key fact*? Why?

9. Study each set of examples on page 168 and put your finger on the key fact.

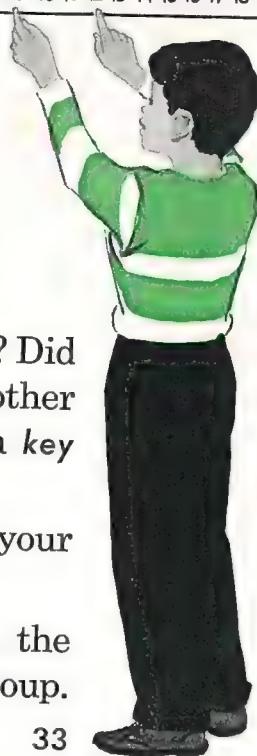
Copy these addition examples and write the answers. Draw a line under the key fact in each group.

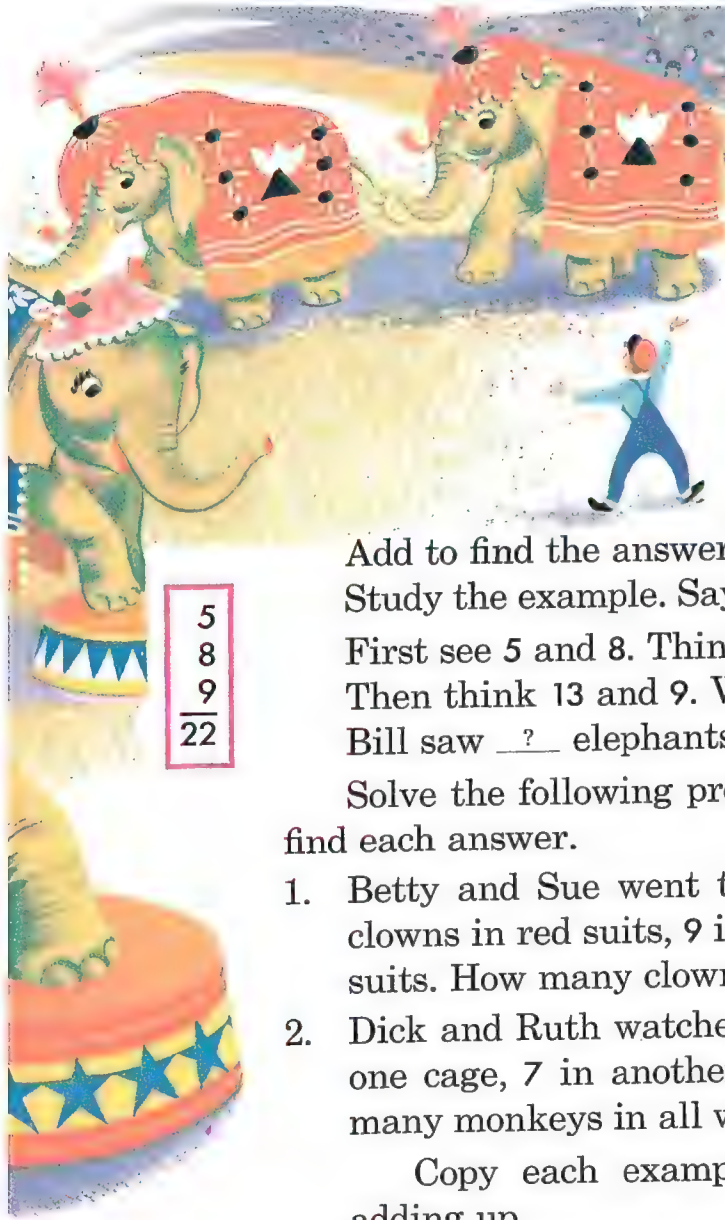
10.	$\begin{array}{r} 8 \\ + 7 \\ \hline \end{array}$	$\begin{array}{r} 18 \\ + 7 \\ \hline \end{array}$	$\begin{array}{r} 28 \\ + 7 \\ \hline \end{array}$	$\begin{array}{r} 38 \\ + 7 \\ \hline \end{array}$	15.	$\begin{array}{r} 3 \\ + 9 \\ \hline \end{array}$	$\begin{array}{r} 13 \\ + 9 \\ \hline \end{array}$	$\begin{array}{r} 23 \\ + 9 \\ \hline \end{array}$	$\begin{array}{r} 33 \\ + 9 \\ \hline \end{array}$
11.	$\begin{array}{r} 6 \\ + 6 \\ \hline \end{array}$	$\begin{array}{r} 16 \\ + 6 \\ \hline \end{array}$	$\begin{array}{r} 26 \\ + 6 \\ \hline \end{array}$	$\begin{array}{r} 36 \\ + 6 \\ \hline \end{array}$	16.	$\begin{array}{r} 7 \\ + 4 \\ \hline \end{array}$	$\begin{array}{r} 17 \\ + 4 \\ \hline \end{array}$	$\begin{array}{r} 27 \\ + 4 \\ \hline \end{array}$	$\begin{array}{r} 37 \\ + 4 \\ \hline \end{array}$

Copy these key facts in a column. Beside each one write three other addition examples which the key fact helps you to do.

12.	$\begin{array}{r} 1 \\ + 9 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ + 8 \\ \hline \end{array}$	$\begin{array}{r} 7 \\ + 7 \\ \hline \end{array}$	$\begin{array}{r} 2 \\ + 9 \\ \hline \end{array}$	$\begin{array}{r} 8 \\ + 8 \\ \hline \end{array}$	$\begin{array}{r} 6 \\ + 9 \\ \hline \end{array}$	$\begin{array}{r} 8 \\ + 9 \\ \hline \end{array}$	$\begin{array}{r} 9 \\ + 9 \\ \hline \end{array}$	$\begin{array}{r} 5 \\ + 8 \\ \hline \end{array}$	$\begin{array}{r} 3 \\ + 7 \\ \hline \end{array}$
	10	12	14	11	16	15	17	18	13	10

13. Jane asked 14 girls and 9 boys to her birthday party. How many children in all did she ask?
14. Jane hid some peanuts for a peanut hunt. She hid 37 in one room and 8 in another. How many peanuts in all did she hide?





## Seen at the Circus

COLUMN ADDITION; BRIDGING SECOND STEP

Bill was watching the elephants in the circus. He saw 5 elephants in one ring, 8 in another ring, and 9 in a third ring. How many elephants in all did he see in the three rings?

Add to find the answer. Why?

Study the example. Say each missing number.

First see 5 and 8. Think   ?  

Then think 13 and 9. Write   ?  

Bill saw   ?   elephants in all.

Solve the following problems. Think why you add to find each answer.

- Betty and Sue went to the circus, too. They saw 9 clowns in red suits, 9 in yellow suits, and 9 in striped suits. How many clowns in all did they see?
- Dick and Ruth watched the monkeys. They saw 6 in one cage, 7 in another, and 8 in a third cage. How many monkeys in all were in the three cages?

Copy each example and add down. Check by adding up.

- |          |          |          |          |          |          |          |          |          |          |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 8        | 9        | 7        | 8        | 9        | 6        | 6        | 7        | 8        | 5        |
| 7        | 5        | 9        | 7        | 9        | 6        | 7        | 6        | 6        | 6        |
| <u>6</u> | <u>6</u> | <u>8</u> | <u>5</u> | <u>7</u> | <u>8</u> | <u>9</u> | <u>7</u> | <u>9</u> | <u>9</u> |
- |          |          |          |          |          |          |          |          |          |          |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 8        | 9        | 9        | 4        | 7        | 9        | 5        | 3        | 5        | 8        |
| 8        | 8        | 8        | 7        | 6        | 9        | 9        | 9        | 7        | 8        |
| <u>6</u> | <u>3</u> | <u>8</u> | <u>9</u> | <u>8</u> | <u>2</u> | <u>8</u> | <u>8</u> | <u>9</u> | <u>4</u> |

## Column Addition

BRIDGING TO 20'S IN TENS COLUMN

"How many fruit trees do we have?" asked Ann.

"We have 51 pear trees, 83 peach trees, and 95 apple trees," said her father. "How many is that?"

Would you add to find the answer? Why? Study the example. Say each missing number.

First add the ones. Think 1, 4, 9.

Write   ?   in ones place.

Then add the tens. Think 5, 13,   ?  . 22 tens =   ?   hundreds   ?   tens.

Write   ?   in hundreds place and   ?   in tens place.

There were   ?   fruit trees on the farm.

Copy and add down. Check by adding up. Remember to put the dollar sign and decimal point in the answers to the last three examples.

1.	93	64	86	89	\$.43	\$.73	\$.72
	54	90	91	70	.93	.62	.56
	<u>82</u>	<u>63</u>	<u>41</u>	<u>70</u>	<u>.62</u>	<u>.51</u>	<u>.21</u>

Study the example. Say each missing number.

First add the ones. Think 2, 5, 6.

Write   ?   in ones place.

Then add the tens. Think 7, 12, 20.

Write   ?   in hundreds place and   ?   in tens place.

Copy and add down. Check by adding up. Remember to put the dollar sign and decimal point in the answers that need them.

2.	93	51	42	60	\$.84	\$.71	\$.80
	71	81	92	55	.61	.52	.80
	<u>44</u>	<u>77</u>	<u>72</u>	<u>94</u>	<u>.62</u>	<u>.25</u>	<u>.40</u>

51
83
95
<u>229</u>

72
53
81
<u>206</u>



## Adding Four Numbers

BRIDGING IN THIRD STEP

On her way to school Joan saw 3 bluebirds, 9 robins, 3 crows, and 8 chickadees. How many birds did she see in all?

Study the example. Say each missing number.

See 3 and 9. Think ? Think 12 and 3 are ?

Then think 15 and 8 are ? Write ?

Joan saw ? birds in all.

$$\begin{array}{r} 3 \\ 9 \\ 3 \\ 8 \\ \hline 23 \end{array}$$

Copy each example and add twice. See if you get the same answer both times.

If you have trouble adding a column of numbers, think of the number line as you take each step.

- |    |          |          |          |          |          |          |          |          |          |          |
|----|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 1. | 4        | 8        | 7        | 2        | 6        | 4        | 9        | 6        | 5        | 5        |
|    | 9        | 2        | 9        | 9        | 4        | 8        | 3        | 6        | 5        | 9        |
|    | 5        | 5        | 3        | 7        | 6        | 7        | 5        | 3        | 9        | 5        |
|    | <u>9</u> | <u>7</u> | <u>8</u> | <u>6</u> | <u>6</u> | <u>6</u> | <u>6</u> | <u>9</u> | <u>4</u> | <u>9</u> |
| 2. | 2        | 5        | 2        | 9        | 6        | 6        | 8        | 5        | 4        | 7        |
|    | 8        | 7        | 9        | 4        | 5        | 4        | 9        | 6        | 7        | 5        |
|    | 4        | 5        | 5        | 5        | 5        | 3        | 1        | 4        | 6        | 6        |
|    | <u>6</u> | <u>3</u> | <u>6</u> | <u>2</u> | <u>4</u> | <u>7</u> | <u>2</u> | <u>5</u> | <u>3</u> | <u>2</u> |

## Review

Add the green number to each of the numbers in its row. Write just the answers.

- 8 3, 4, 5, 13, 14, 15, 23, 24, 25, 33, 34, 35
- 8 6, 7, 8, 9, 16, 17, 18, 19, 26, 27, 28, 29
- 9 2, 3, 4, 12, 13, 14, 22, 23, 24, 32, 33, 34



# Games with Marbles

COLUMN ADDITION

The boys rolled marbles into a ring. Ted rolled in 7, Jim rolled in 9, Joe rolled in 8, and Bob rolled in 3. How many marbles then were in the ring?

Would you add to find the answer? Why? Study the example. Say each missing number.

See 7 and 9. Think   ?   Think 16 and 8 are   ?   Think 24 and 3 are   ?   Write   ?  

There were   ?   marbles rolled into the ring.

1. Joe had 8 blue marbles, 7 red marbles, 9 green marbles, and 6 clear glass marbles. How many marbles had Joe all together?
2. Ted tried to hit a big glass marble with his little marbles. He hit it 3 times on his first turn before he missed, 9 times on his second turn, 8 times on his third turn, and 7 times on his fourth turn. How many times did he hit it all together in his four turns?

Copy the four numbers in each group in a column. Add down. Check by adding up.

7
9
8
3
<hr/> 27

3. 6, 5, 9, 5	9, 6, 6, 3	6, 7, 8, 9	6, 6, 9, 5
4. 5, 9, 7, 6	7, 8, 6, 5	7, 9, 6, 7	8, 9, 8, 4
5. 4, 9, 9, 6	7, 9, 4, 3	6, 6, 8, 5	6, 5, 9, 9
6. 8, 8, 4, 8	5, 8, 7, 6	9, 9, 2, 2	8, 6, 6, 5

## Adding Four Two-Place Numbers

Dick and his father were planning a trip in their car. Dick's father said, "We go 81 miles to get to Grandmother's. Then we drive 90 miles to Aunt Sue's, then 63 miles to Rockport, and 24 miles more to Uncle Jim's. How far does that make in all?"

Dick added to get the answer. Why?

Study the example. Say each missing number.

$$\begin{array}{r} 81 \\ 90 \\ 63 \\ 24 \\ \hline 258 \end{array}$$

First add the ones. Think 1, 4, ? Write ? in ones place.

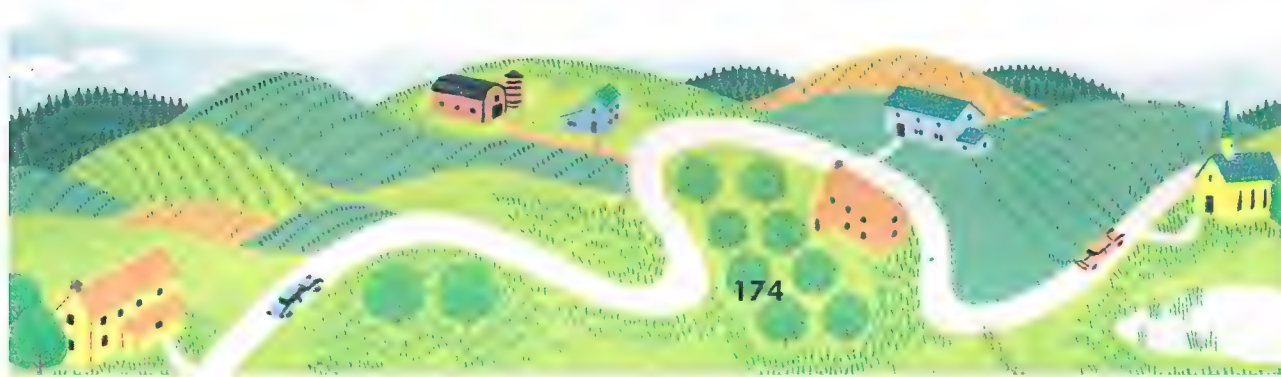
Then add the tens. Think 8, 17, ?, ?. 25 tens = ? hundreds ? tens. Write ? in hundreds place and ? in tens place.

Cover the answers in the next row of examples with folded paper. Then add, write your answers on the folded paper, and see if you get the same answers.

1.	92	72	\$ .32	\$ .95	\$ .63	\$ .71
	43	81	.86	.90	.73	.32
	50	93	.90	.93	.91	.44
	24	41	.21	.20	.52	.62
	<u>209</u>	<u>287</u>	<u>\$2.29</u>	<u>\$2.98</u>	<u>\$2.79</u>	<u>\$2.09</u>

Copy each example, add, and check.

2.	54	65	42	80	78	\$ .99
	93	60	95	80	90	.70
	80	90	71	83	50	.10
	<u>12</u>	<u>53</u>	<u>30</u>	<u>30</u>	<u>40</u>	<u>.20</u>





## Practicing with a Number Line

It helps to use a number line in doing a long addition example. Use the number line to add 9, 8, 6, and 9.

Think 9 and 8, 17. Put your finger on 17 on the line.

Think 17 and 6. The answer must end in 3, because 7 and 6 are 13. Go from 17 to the next number that ends in 3.

Think 23 and 9. The answer must end in 2, because 3 and 9 are 12. Go from 23 to the next number that ends in 2. The answer to the example is 32.

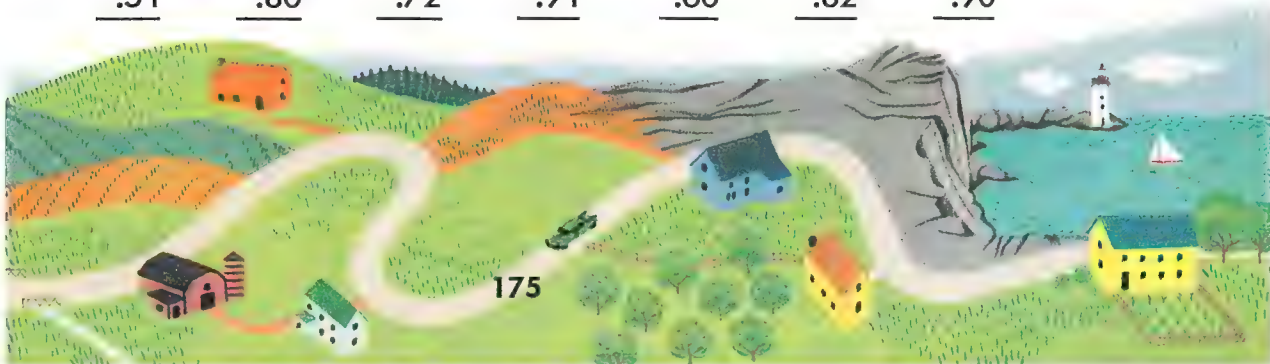
$$\begin{array}{r} 9 \\ 8 \\ 6 \\ 9 \\ \hline 32 \end{array}$$

Copy the numbers in each group in a column. Add and check each step on the number line. Think of the ending figure of each step as you do it.

- |               |            |            |
|---------------|------------|------------|
| 1. 8, 5, 6, 1 | 4, 7, 8, 9 | 6, 4, 7, 9 |
| 2. 8, 2, 9, 6 | 9, 2, 5, 4 | 5, 9, 5, 8 |
| 3. 7, 3, 8, 7 | 9, 1, 6, 8 | 9, 9, 8, 4 |

Copy and add down. Check by adding up. Use the number line if you need help in any step.

- |    |            |            |            |            |            |            |            |          |          |
|----|------------|------------|------------|------------|------------|------------|------------|----------|----------|
| 4. | 7          | 8          | 6          | 8          | 9          | 7          | 6          | 5        | 9        |
|    | 9          | 8          | 9          | 9          | 9          | 7          | 8          | 9        | 7        |
|    | 6          | 9          | 9          | 9          | 9          | 8          | 9          | 7        | 9        |
|    | <u>8</u>   | <u>9</u>   | <u>8</u>   | <u>7</u>   | <u>9</u>   | <u>8</u>   | <u>8</u>   | <u>9</u> | <u>9</u> |
| 5. | \$ .43     | \$ .60     | \$ .73     | \$ .84     | \$ .72     | \$ .84     | \$ .42     |          |          |
|    | .93        | .55        | .62        | .61        | .56        | .53        | .82        |          |          |
|    | .62        | .94        | .51        | .62        | .21        | .20        | .55        |          |          |
|    | <u>.51</u> | <u>.80</u> | <u>.72</u> | <u>.91</u> | <u>.60</u> | <u>.82</u> | <u>.90</u> |          |          |





## Fun with Beads

BRIDGING TO 30'S IN TENS COLUMN

Ellen strung 82 beads on one string, 73 on another, 91 on another, and 83 on a fourth. How many beads in all did Ellen string?

Study the example. Say each missing number.

First add the ones. Think 2, 5,   ?  ,   ?  . Write   ?   in ones place.

Then add the tens. Think 8, 15,   ?  ,   ?  . Your answer =   ?   hundreds   ?   tens. Write   ?   in hundreds place and   ?   in tens place.

Ellen put   ?   beads in all on the four strings.

Solve these problems.

- Jane had 70 red beads, 72 blue beads, 71 yellow beads, and 94 black beads. She had how many beads in all?
- Alice made pictures by sewing beads on her handbag. She used 82 beads for one picture, 87 for another, 80 for another, and 80 for another. How many beads in all did Alice use for the four pictures?

Copy each example and add. Use a number line to check your addition of each tens column.

- |    |           |           |           |           |           |           |
|----|-----------|-----------|-----------|-----------|-----------|-----------|
| 3. | 63        | 87        | 70        | 95        | 91        | 64        |
|    | 81        | 91        | 84        | 70        | 92        | 90        |
|    | 92        | 61        | 82        | 83        | 93        | 73        |
|    | <u>82</u> | <u>80</u> | <u>80</u> | <u>80</u> | <u>80</u> | <u>92</u> |
| 4. | 94        | 92        | 60        | 40        | 73        | 30        |
|    | 82        | 92        | 70        | 80        | 74        | 90        |
|    | 50        | 92        | 95        | 95        | 80        | 90        |
|    | <u>72</u> | <u>92</u> | <u>90</u> | <u>93</u> | <u>81</u> | <u>90</u> |

82
73
91
83
<u>329</u>

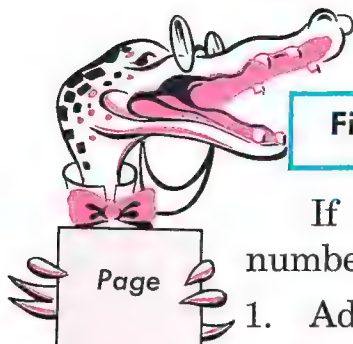
# Practice to Remember

Add the green number to each number at the right in its row. Write just the answers.

1.	2	7	17	27	8	18	28	38
2.	4	5	15	25	35	45	55	65
3.	6	2	12	22	32	42	52	62
4.	8	5	15	25	35	45	55	65
5.	3	4	14	24	34	44	54	64
6.	5	7	17	27	37	47	57	67
7.	7	8	18	28	38	48	58	68
8.	9	7	17	27	37	47	57	67

Copy each example. Write and check the answer.

9.	7 4 <u>+4</u>	8 4 <u>+5</u>	6 8 <u>+2</u>	5 5 <u>+9</u>	4 9 <u>+5</u>	2 9 <u>+8</u>	9 4 <u>+3</u>	3 9 <u>+4</u>	4 8 <u>+6</u>	1 9 <u>+5</u>
10.	9 9 <u>+7</u>	8 8 <u>+7</u>	5 9 <u>+6</u>	9 6 <u>+6</u>	8 9 <u>+9</u>	8 6 <u>+7</u>	5 8 <u>+7</u>	9 8 <u>+6</u>	7 5 <u>+8</u>	9 5 <u>+7</u>
11.	128 <u>-92</u>	153 <u>-62</u>	257 <u>-34</u>	476 <u>-21</u>	365 <u>-40</u>	960 <u>-20</u>	149 <u>-103</u>			
12.	146 <u>-53</u>	172 <u>-82</u>	157 <u>-53</u>	115 <u>-35</u>	168 <u>-76</u>	189 <u>-86</u>	137 <u>-67</u>			
13.	\$1.25 <u>-.82</u>	\$1.38 <u>-.54</u>	\$1.63 <u>-.83</u>	\$1.89 <u>-.95</u>	\$1.58 <u>-.95</u>	\$1.05 <u>-.74</u>	\$1.17 <u>-.95</u>			
14.	51 41 31 <u>+82</u>	82 32 71 <u>+23</u>	60 98 20 <u>+70</u>	72 30 63 <u>+60</u>	31 84 51 <u>+50</u>	94 53 40 <u>+71</u>	31 62 21 <u>+90</u>	60 41 96 <u>+82</u>	60 33 13 <u>+71</u>	



## Finding What You Need to Study Again

If you need to study something again, the page numbers at the side tell you where to find it.

1. Add each red number to every number beside it in its row. Write just the answers.

4	3	4	5	23	24	25	33	34	35
6	1	2	3	31	32	33	41	42	43

2. Subtract each red number from every number beside it in its row. Write just the answers.

3	7	8	9	17	18	19	27	28	29
6	7	8	9	37	38	39	47	48	49

Add down. Check by adding up.

3.	66	74	34	40	56
	71	74	82	65	91
	30	40	60	21	41

4.	123	789	560	246	753
	456	110	327	531	204

5.	\$1.05	\$2.50	\$3.29	\$4.18	\$6.34
	7.24	5.35	6.20	2.80	2.04

Subtract. Check by adding.

6.	957	899	579	\$8.38	\$9.49	\$8.29
	204	110	456	2.04	6.20	7.24

7.	824	539	739	510	608	246
	814	536	230	110	603	206

Copy and add twice.

8.	321	432	543	654	765	876	987	210
	102	230	312	215	10	3	2	75
	456	123	130	130	4	20	10	3

Page

150–152

158

155

156

157

159, 160,  
162

159, 160,  
161

164, 165

178



Copy and subtract. Check by adding.

9. $\begin{array}{r} \$4.79 \\ \underline{.15} \end{array}$	$\begin{array}{r} \$9.88 \\ \underline{.63} \end{array}$	$\begin{array}{r} \$5.99 \\ \underline{.13} \end{array}$	$\begin{array}{r} \$2.16 \\ \underline{.12} \end{array}$	$\begin{array}{r} \$3.68 \\ \underline{.38} \end{array}$
---	--	--	--	--

10. Add each red number to every number beside it in its row. Write just the answers.

7	5	6	7	25	26	27	35	36	37
9	7	8	9	17	18	19	27	28	29

Copy and add down. Check by adding up.

11. $\begin{array}{r} 80 \\ 91 \\ \underline{55} \end{array}$	$\begin{array}{r} 52 \\ 93 \\ \underline{93} \end{array}$	$\begin{array}{r} 71 \\ 84 \\ \underline{82} \end{array}$	$\begin{array}{r} \$ .64 \\ .72 \\ \underline{.73} \end{array}$	$\begin{array}{r} \$ .93 \\ .91 \\ \underline{.63} \end{array}$
---	---	---	---	---

12. $\begin{array}{r} \$9.25 \\ .60 \\ \underline{.03} \end{array}$	$\begin{array}{r} \$ .05 \\ 3.21 \\ \underline{.42} \end{array}$	$\begin{array}{r} \$ .73 \\ .04 \\ \underline{2.12} \end{array}$	$\begin{array}{r} \$1.46 \\ .13 \\ \underline{4.40} \end{array}$	$\begin{array}{r} \$ .15 \\ 2.02 \\ \underline{2.62} \end{array}$
---	--	--	--	---

13. $\begin{array}{r} 2 \\ 9 \\ 5 \\ \underline{9} \end{array}$	$\begin{array}{r} 3 \\ 9 \\ 6 \\ \underline{6} \end{array}$	$\begin{array}{r} 4 \\ 8 \\ 7 \\ \underline{9} \end{array}$	$\begin{array}{r} 5 \\ 9 \\ 3 \\ \underline{6} \end{array}$	$\begin{array}{r} 6 \\ 8 \\ 1 \\ \underline{7} \end{array}$
---	---	---	---	---

14. $\begin{array}{r} 6 \\ 9 \\ 6 \\ \underline{7} \end{array}$	$\begin{array}{r} 7 \\ 6 \\ 9 \\ \underline{5} \end{array}$	$\begin{array}{r} 8 \\ 8 \\ 7 \\ \underline{6} \end{array}$	$\begin{array}{r} 9 \\ 5 \\ 8 \\ \underline{3} \end{array}$	$\begin{array}{r} 5 \\ 6 \\ 9 \\ \underline{7} \end{array}$
---	---	---	---	---

15. $\begin{array}{r} 11 \\ 92 \\ 54 \\ \underline{90} \end{array}$	$\begin{array}{r} 12 \\ 73 \\ 81 \\ \underline{72} \end{array}$	$\begin{array}{r} 43 \\ 84 \\ 60 \\ \underline{51} \end{array}$	$\begin{array}{r} \$ .64 \\ .74 \\ .41 \\ \underline{.30} \end{array}$	$\begin{array}{r} \$ .75 \\ .94 \\ .30 \\ \underline{.10} \end{array}$
---	---	---	--	--

16. $\begin{array}{r} 80 \\ 75 \\ 91 \\ \underline{71} \end{array}$	$\begin{array}{r} 61 \\ 81 \\ 82 \\ \underline{82} \end{array}$	$\begin{array}{r} 92 \\ 93 \\ 70 \\ \underline{73} \end{array}$	$\begin{array}{r} 73 \\ 50 \\ 90 \\ \underline{94} \end{array}$	$\begin{array}{r} 54 \\ 91 \\ 94 \\ \underline{90} \end{array}$
---	---	---	---	---



Page

167

168, 169

171

166

172

173

174

176

179





## Finding Out What You Know



### A. Word Meanings

Copy the sentence numbers. After each number write the word or words left out of the sentence. Choose from the row of words under the sentence.

1. When you are adding dollars and cents you put a \_\_\_\_\_ sign and \_\_\_\_\_ point in the answer.  
*cents      dollar      question      decimal      money*
2. The word *twice* means \_\_\_\_\_.  
*five times      four times      three times      two times*
3. We check answers to help us \_\_\_\_\_.  
*put together      find mistakes      take away*

### B. Arithmetic Understandings

Add 8 to the numbers in each of the following rows.

- |      |    |    |    |    |    |    |    |
|------|----|----|----|----|----|----|----|
| 1. 3 | 23 | 33 | 43 | 53 | 63 | 73 | 83 |
| 2. 6 | 26 | 36 | 46 | 56 | 66 | 76 | 86 |
| 3. 7 | 27 | 37 | 47 | 57 | 67 | 77 | 87 |
| 4. 9 | 29 | 39 | 49 | 59 | 69 | 79 | 89 |

In each row find three examples that have answers with the same endings. Copy those examples only and write the answers.

- |              |          |          |          |          |
|--------------|----------|----------|----------|----------|
| 5. $15 + 2$  | $27 + 2$ | $35 + 2$ | $40 + 2$ | $75 + 2$ |
| 6. $34 + 3$  | $44 + 3$ | $55 + 3$ | $61 + 3$ | $74 + 3$ |
| 7. $53 + 4$  | $64 + 4$ | $74 + 4$ | $82 + 4$ | $94 + 4$ |
| 8. $17 - 2$  | $37 - 2$ | $58 - 2$ | $75 - 2$ | $97 - 2$ |
| 9. $29 - 3$  | $18 - 3$ | $49 - 3$ | $67 - 3$ | $89 - 3$ |
| 10. $16 - 4$ | $26 - 4$ | $37 - 4$ | $46 - 4$ | $58 - 4$ |

### C. Number Facts and Skills

Copy each example. Write the answer. Check each of your answers.

1.	$\begin{array}{r} 5 \\ 6 \\ +7 \\ \hline \end{array}$	$\begin{array}{r} 9 \\ 7 \\ +3 \\ \hline \end{array}$	$\begin{array}{r} 4 \\ 9 \\ +9 \\ \hline \end{array}$	$\begin{array}{r} 6 \\ 8 \\ +8 \\ \hline \end{array}$	$\begin{array}{r} 72 \\ 83 \\ +90 \\ \hline \end{array}$	$\begin{array}{r} 91 \\ 92 \\ +93 \\ \hline \end{array}$	$\begin{array}{r} 92 \\ 84 \\ +31 \\ \hline \end{array}$	$\begin{array}{r} 70 \\ 70 \\ +70 \\ \hline \end{array}$
----	---	---	---	---	--	--	--	--

2.	$\begin{array}{r} 158 \\ -96 \\ \hline \end{array}$	$\begin{array}{r} 163 \\ -93 \\ \hline \end{array}$	$\begin{array}{r} 294 \\ -90 \\ \hline \end{array}$	$\begin{array}{r} 655 \\ -41 \\ \hline \end{array}$	$\begin{array}{r} \$1.45 \\ -.75 \\ \hline \end{array}$	$\begin{array}{r} \$3.93 \\ -.41 \\ \hline \end{array}$
----	---	---	---	---	---	---

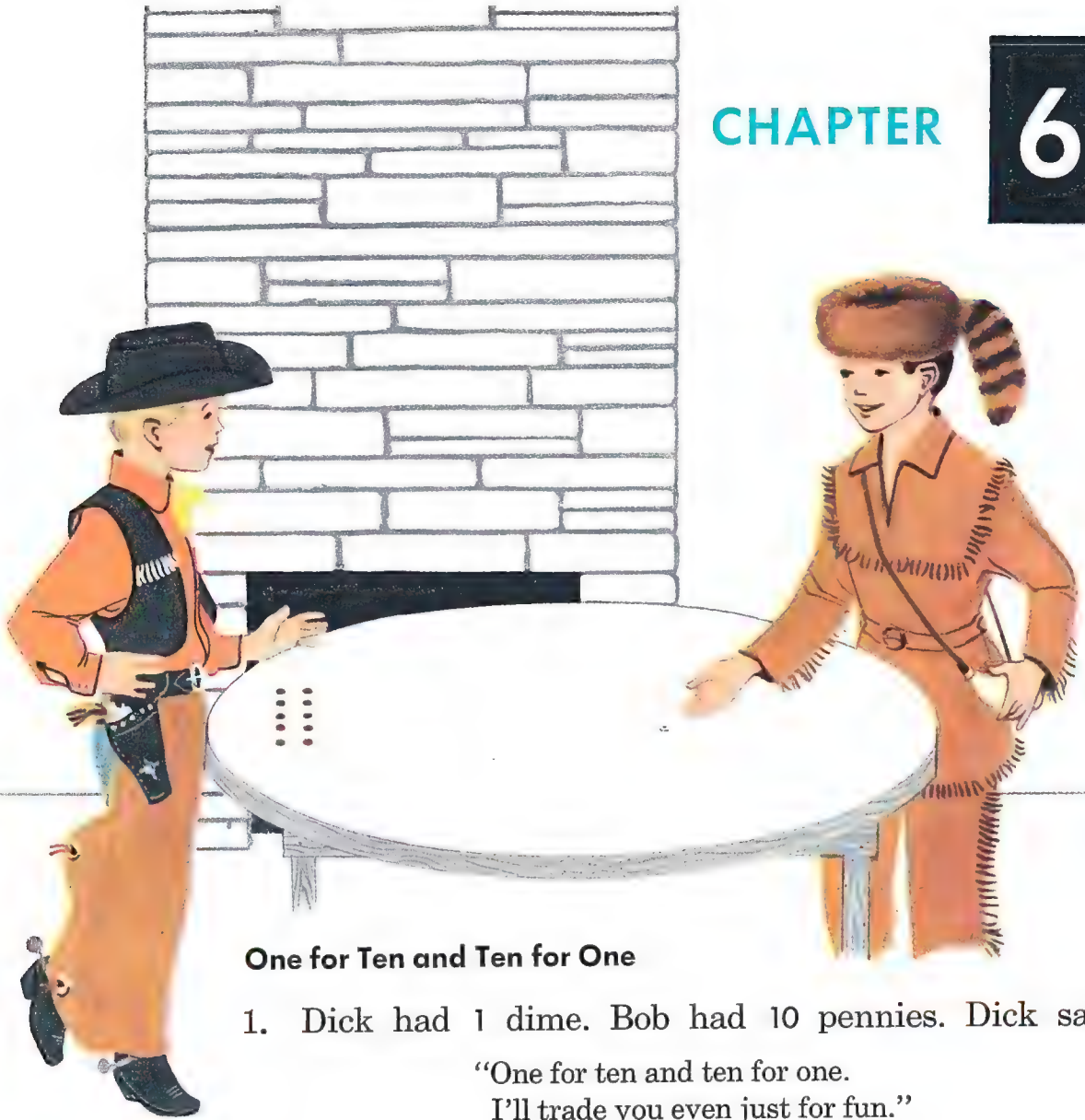
3.	$\begin{array}{r} 88 \\ 81 \\ 70 \\ +70 \\ \hline \end{array}$	$\begin{array}{r} 63 \\ 90 \\ 85 \\ +81 \\ \hline \end{array}$	$\begin{array}{r} 42 \\ 2 \\ +353 \\ \hline \end{array}$	$\begin{array}{r} \$1.32 \\ 5.25 \\ +2.41 \\ \hline \end{array}$	$\begin{array}{r} 468 \\ -408 \\ \hline \end{array}$	$\begin{array}{r} \$5.79 \\ -1.62 \\ \hline \end{array}$
----	--	--	--	--	--	--

### D. Problem Solving

Solve each problem. Be sure your answer makes sense.

1. Sam had 256 marbles. Of these 123 were red and the rest were green. How many of the marbles were green?
2. Alice had \$1.25 in pennies and \$1.50 in dimes. This is all the money she had. How much was it?
3. How much more money does Ruth need to buy a hat costing \$3.60? Already she has \$1.20.
4. Dick's school was open 165 days in a year having 365 days. How many days was his school closed?
5. Tom's baseball team made 17 runs. Ted's team made 5 runs. Tom's team won the game by how many runs?
6. Betty took Ann to a show one Saturday afternoon. Betty paid \$1.10 for show tickets, \$.30 for ice cream, and \$.48 for bus fares. This made how much in all that Betty spent?





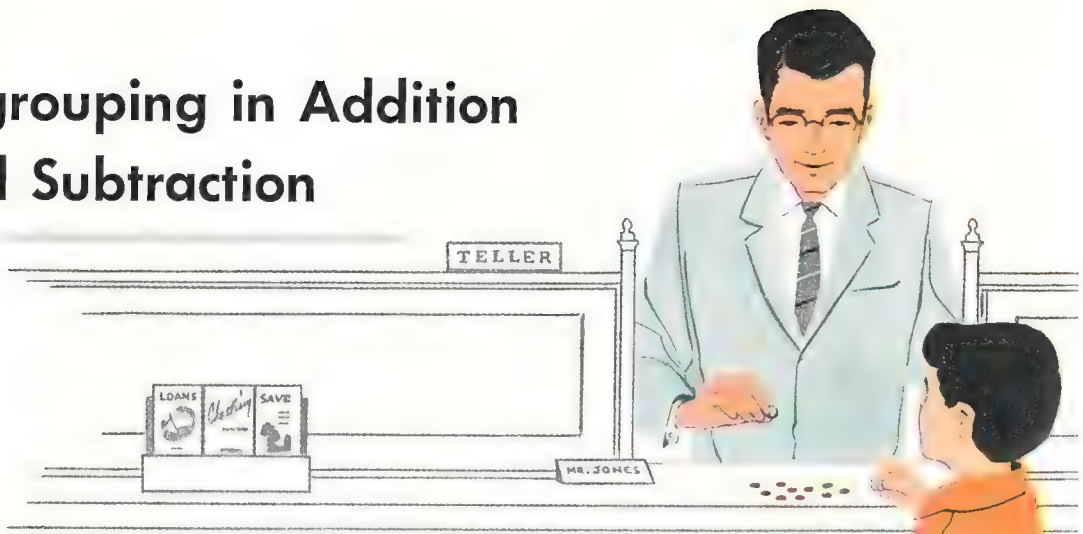
### One for Ten and Ten for One

1. Dick had 1 dime. Bob had 10 pennies. Dick said,  
“One for ten and ten for one.  
I’ll trade you even just for fun.”

Would it be an even trade? Why?

2. Betty had 20 pennies. Ruth offered to trade her 2 dimes for the 20 pennies. Would this be an even trade? Why?
3. Jack had 3 pennies. His father gave him 7 more. How many dimes could he get for all his pennies?

# Regrouping in Addition and Subtraction



Read each problem. Say each missing number.

4. Jim had 1 dime and 3 pennies. His brother gave him 7 pennies. Then Jim had 1 dime and   ?   pennies. Jim traded his   ?   pennies for   ?   dime. Then he had   ?   dimes and   ?   pennies. His money was worth   ?   cents.

5. Ann's sister is 5 years old. Ann wants to give her 5 pennies for a present. Ann has 2 dimes and 4 pennies. How can she get more pennies?

Ann's father gave her 10 pennies for   ?   of her dimes. Now she has 1 dime and   ?   pennies. Can she give her sister 5 pennies?

How much money will Ann have left?

1 dime and 9 pennies make   ?   cents.

Copy these examples and write the missing numbers.

6. 3 dimes, 11 pennies = 4 dimes,   ?   penny =   ?  ¢
7. 4 dimes, 12 pennies =   ?   dimes, 2 pennies =   ?  ¢
8. 6 dimes, 15 pennies =   ?   dimes,   ?   pennies =   ?  ¢



## Using Dimes and Pennies to Find How Much in All



Ruth's mother gave her 26¢. Her aunt gave her 38¢. How much money did Ruth get all together?

You should add to answer the question. Why?

The picture will help you say each missing number.

Ruth had   ?   dimes and   ?   pennies in all. She said, "I could trade 10 of my pennies for a dime." Ruth would then have   ?   dimes and   ?   pennies. That makes   ?   cents.

We could write the example like this:

$$26¢ = 2 \text{ dimes and } 6 \text{ pennies}$$

$$38¢ = 3 \text{ dimes and } 8 \text{ pennies}$$

---

$$5 \text{ dimes and } 14 \text{ pennies}$$

Now change 10 of the pennies for a dime. How many pennies are left over?

Put the 1 dime with the other 5 dimes. How many dimes does that make in all?

6 dimes and 4 pennies equal 64 cents.

Do 5 dimes and 14 pennies equal 64 cents, too?

Copy this example and write the missing numbers.

$$\begin{array}{r} 2 \text{ dimes and } 5 \text{ pennies} \\ + 2 \text{ dimes and } 8 \text{ pennies} \\ \hline \text{? dimes and ? pennies} = \text{?¢} \end{array}$$

If you change 10 of the pennies for a dime, you will have   ?   dimes   ?   pennies, worth   ?   cents.

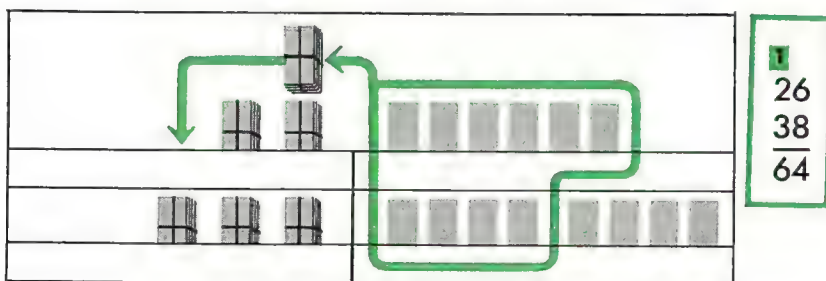
## Changing Ten Ones to One Ten

CARRYING IN ADDITION

Dick could add two-place numbers. Tom was still learning how, so Dick helped him.

Tom said, "I can add 26 and 33. I add the ones and get 9. I add the tens and get 5. The answer is 59. But when I try to add 26 and 38 I get stuck. When I add 6 and 8, I get 14 ones, but the largest number I can put in ones place is 9. What do I write?"

"I'll show you," said Dick. "It's like adding money in dimes and pennies. We can use the place-value chart.



We'll put 26 in the top row; that's 2 tens 6 ones. Put 38 in the second row; that's 3 tens 8 ones. Now all together we have 5 tens, 14 ones, just as you said. We take 10 of the 14 ones, bundle them together to make 1 ten, and put that 1 ten with the other tens."

This is how Dick added.

First add the ones. Think 6 and 8 are 14, or 1 ten and 4 ones. Write 4 in ones place. Add the 1 ten with the other tens.

Then add the tens. Think **1**, 3, 6. Write 6 in tens place. The answer is 64.

When Dick changed the 10 ones to 1 ten and added it with the other tens, he was *carrying* a ten.





## Addition with Carrying

Ann practiced on the piano 24 minutes this morning and 16 minutes this afternoon. How many minutes did Ann practice? Should you add to find the answer? Why?

1

$$\begin{array}{r} 24 \\ 16 \\ \hline 40 \end{array}$$

Study the example. Say each missing number.

First add the ones. Think 4 and 6 are 10. Think of 10 ones as 1 ten and 0 ones. Write   ? in ones place. Carry the 1 ten.

Add the tens. Think **1**, 3, 4. Write   ? in tens place.

Ann practiced   ? minutes.

Copy, add, and check.

- |    |   |   |   |  |  |  |  |  |
|----|---|---|---|--|--|--|--|--|
| 1. | $\begin{array}{r} 13 \\ 37 \\ \hline \end{array}$ | $\begin{array}{r} 25 \\ 65 \\ \hline \end{array}$ | $\begin{array}{r} 44 \\ 36 \\ \hline \end{array}$ | $\begin{array}{r} \$ .25 \\ .16 \\ \hline \end{array}$ | $\begin{array}{r} \$ .48 \\ .12 \\ \hline \end{array}$ | $\begin{array}{r} \$ .08 \\ .48 \\ \hline \end{array}$ | $\begin{array}{r} \$ .59 \\ .15 \\ \hline \end{array}$ | $\begin{array}{r} \$ .17 \\ .64 \\ \hline \end{array}$ |
| 2. | $\begin{array}{r} 26 \\ 44 \\ \hline \end{array}$ | $\begin{array}{r} 16 \\ 19 \\ \hline \end{array}$ | $\begin{array}{r} 32 \\ 58 \\ \hline \end{array}$ | $\begin{array}{r} \$ .87 \\ .03 \\ \hline \end{array}$ | $\begin{array}{r} \$ .61 \\ .29 \\ \hline \end{array}$ | $\begin{array}{r} \$ .25 \\ .07 \\ \hline \end{array}$ | $\begin{array}{r} \$ .19 \\ .21 \\ \hline \end{array}$ | $\begin{array}{r} \$ .32 \\ .09 \\ \hline \end{array}$ |

1

$$\begin{array}{r} 76 \\ 29 \\ \hline 105 \end{array}$$

Study the example. Say each missing number.

First add the ones. Think 6 and 9 are 15. Write   ? in ones place. Add the 1 ten with the other tens.

Then add the tens. Think **1**, 8,   ? Write 10. The 1 will be in hundreds place and the 0 in tens place, because 10 tens are   ? hundred   ? tens.

Copy, add, and check.

- |    |   |   |   |   |   |  |  |  |
|----|---|---|---|---|---|--|--|--|
| 3. | $\begin{array}{r} 36 \\ 68 \\ \hline \end{array}$ | $\begin{array}{r} 89 \\ 83 \\ \hline \end{array}$ | $\begin{array}{r} 68 \\ 76 \\ \hline \end{array}$ | $\begin{array}{r} 45 \\ 96 \\ \hline \end{array}$ | $\begin{array}{r} 58 \\ 84 \\ \hline \end{array}$ | $\begin{array}{r} \$ .37 \\ .96 \\ \hline \end{array}$ | $\begin{array}{r} \$ .23 \\ .78 \\ \hline \end{array}$ | $\begin{array}{r} \$ .15 \\ .98 \\ \hline \end{array}$ |
| 4. | $\begin{array}{r} 49 \\ 76 \\ \hline \end{array}$ | $\begin{array}{r} 37 \\ 65 \\ \hline \end{array}$ | $\begin{array}{r} 66 \\ 34 \\ \hline \end{array}$ | $\begin{array}{r} 85 \\ 75 \\ \hline \end{array}$ | $\begin{array}{r} 78 \\ 57 \\ \hline \end{array}$ | $\begin{array}{r} \$ .09 \\ .94 \\ \hline \end{array}$ | $\begin{array}{r} \$ .26 \\ .76 \\ \hline \end{array}$ | $\begin{array}{r} \$ .52 \\ .08 \\ \hline \end{array}$ |

## Practice to Remember

Add down. Check by adding up.

1. 
$$\begin{array}{r} 156 \\ 412 \\ \hline \end{array}$$
 
$$\begin{array}{r} 328 \\ 561 \\ \hline \end{array}$$
 
$$\begin{array}{r} 170 \\ 824 \\ \hline \end{array}$$
 
$$\begin{array}{r} 469 \\ 100 \\ \hline \end{array}$$
 
$$\begin{array}{r} \$7.25 \\ 1.53 \\ \hline \end{array}$$
 
$$\begin{array}{r} \$5.14 \\ 2.13 \\ \hline \end{array}$$
 
$$\begin{array}{r} \$3.02 \\ 4.04 \\ \hline \end{array}$$
2. 
$$\begin{array}{r} 21 \\ 32 \\ 3 \\ 41 \\ \hline \end{array}$$
 
$$\begin{array}{r} 12 \\ 2 \\ 62 \\ 3 \\ \hline \end{array}$$
 
$$\begin{array}{r} 10 \\ 33 \\ 2 \\ 40 \\ \hline \end{array}$$
 
$$\begin{array}{r} 31 \\ 17 \\ 20 \\ 20 \\ \hline \end{array}$$
 
$$\begin{array}{r} 12 \\ 1 \\ 50 \\ 6 \\ \hline \end{array}$$
 
$$\begin{array}{r} 40 \\ 2 \\ 7 \\ 50 \\ \hline \end{array}$$
3. 
$$\begin{array}{r} 9 \\ 8 \\ 9 \\ 9 \\ \hline \end{array}$$
 
$$\begin{array}{r} 4 \\ 6 \\ 5 \\ 9 \\ \hline \end{array}$$
 
$$\begin{array}{r} 5 \\ 5 \\ 8 \\ 8 \\ \hline \end{array}$$
 
$$\begin{array}{r} 7 \\ 8 \\ 8 \\ 9 \\ \hline \end{array}$$
 
$$\begin{array}{r} 9 \\ 6 \\ 6 \\ 9 \\ \hline \end{array}$$
 
$$\begin{array}{r} 8 \\ 9 \\ 7 \\ 8 \\ \hline \end{array}$$
 
$$\begin{array}{r} 6 \\ 7 \\ 7 \\ 6 \\ \hline \end{array}$$
 
$$\begin{array}{r} 3 \\ 8 \\ 9 \\ 7 \\ \hline \end{array}$$
 
$$\begin{array}{r} 9 \\ 7 \\ 8 \\ 9 \\ \hline \end{array}$$
 
$$\begin{array}{r} 9 \\ 9 \\ 7 \\ 7 \\ \hline \end{array}$$

Subtract. Check by adding.

4. 
$$\begin{array}{r} 987 \\ 246 \\ \hline \end{array}$$
 
$$\begin{array}{r} 654 \\ 130 \\ \hline \end{array}$$
 
$$\begin{array}{r} 321 \\ 301 \\ \hline \end{array}$$
 
$$\begin{array}{r} \$8.64 \\ 7.34 \\ \hline \end{array}$$
 
$$\begin{array}{r} \$1.35 \\ 1.12 \\ \hline \end{array}$$
 
$$\begin{array}{r} \$3.57 \\ 2.55 \\ \hline \end{array}$$
5. 
$$\begin{array}{r} 157 \\ 14 \\ \hline \end{array}$$
 
$$\begin{array}{r} 468 \\ 26 \\ \hline \end{array}$$
 
$$\begin{array}{r} 598 \\ 35 \\ \hline \end{array}$$
 
$$\begin{array}{r} \$3.09 \\ .05 \\ \hline \end{array}$$
 
$$\begin{array}{r} \$6.78 \\ .28 \\ \hline \end{array}$$
 
$$\begin{array}{r} \$9.67 \\ .63 \\ \hline \end{array}$$

Add down. Check by adding up.

6. 
$$\begin{array}{r} 25 \\ 58 \\ \hline \end{array}$$
 
$$\begin{array}{r} 38 \\ 47 \\ \hline \end{array}$$
 
$$\begin{array}{r} 16 \\ 39 \\ \hline \end{array}$$
 
$$\begin{array}{r} 49 \\ 21 \\ \hline \end{array}$$
 
$$\begin{array}{r} \$.57 \\ .26 \\ \hline \end{array}$$
 
$$\begin{array}{r} \$.64 \\ .18 \\ \hline \end{array}$$
 
$$\begin{array}{r} \$.43 \\ .47 \\ \hline \end{array}$$
 
$$\begin{array}{r} \$.72 \\ .19 \\ \hline \end{array}$$
7. 
$$\begin{array}{r} 39 \\ 67 \\ \hline \end{array}$$
 
$$\begin{array}{r} 58 \\ 42 \\ \hline \end{array}$$
 
$$\begin{array}{r} 76 \\ 48 \\ \hline \end{array}$$
 
$$\begin{array}{r} 97 \\ 85 \\ \hline \end{array}$$
 
$$\begin{array}{r} \$.25 \\ .95 \\ \hline \end{array}$$
 
$$\begin{array}{r} \$.14 \\ .87 \\ \hline \end{array}$$
 
$$\begin{array}{r} \$.63 \\ .78 \\ \hline \end{array}$$
 
$$\begin{array}{r} \$.89 \\ .59 \\ \hline \end{array}$$

Write with figures:

8. Two hundred three
9. Five hundred twenty
10. Eight hundred eleven
11. Four hundred eighteen

Write with words:

12. 179
13. 308
14. 960
15. 612





## Family Helpers

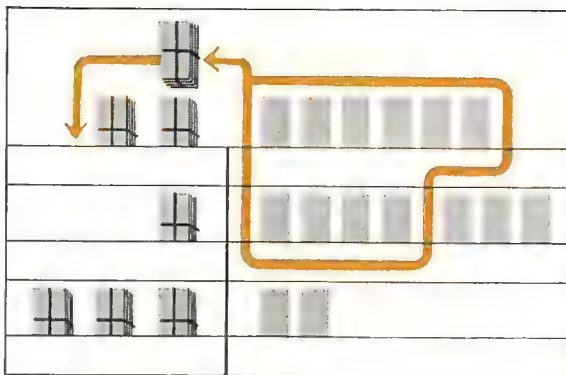
ADDITION PROBLEMS WITH CARRYING

1. Jim helped by doing errands. One day it took him 37 minutes to do one errand and 16 minutes to do another. How many minutes did it take him for the two errands?
2. Jane's mother asked her to count the jars of fruit in the closet. Jane counted 16 jars of peaches and 18 jars of berries. Together, how many jars of fruit was this?
3. Joe earned money selling papers. One day he earned 44 cents. The next day he earned 46 cents. How much did he earn in the two days?
4. Ruth went to the store for her mother. She bought oranges for 49 cents and grapes for 15 cents. How much did she spend for all this fruit?
5. Sue helped with the ironing. She ironed 18 handkerchiefs and 12 napkins. Her mother did the rest. How many things did Sue iron?
6. Alice polished the silver spoons. She polished 18 tablespoons and 18 teaspoons. How many spoons in all did she polish?
7. Joan helped with the dusting. She spent 15 minutes on the parlor and 16 minutes on the living room. How many minutes did it take her to dust the two rooms?
8. Jack fed the chickens. He fed 29 in one yard and 32 in another yard. How many chickens did he feed in both yards?

# Column Addition with Carrying

TWO-PLACE SUMS. CARRYING 1 TEN

Ellen helped her mother make 26 sandwiches with ham, 17 with jelly, and 32 with peanut butter. They made how many sandwiches all together?



$$\begin{array}{r} 26 \\ 17 \\ 32 \\ \hline 75 \end{array}$$

Would you add to find the answer? Why?

Study the example. Say each missing number.

First add the ones. Think 6, 13, ? Write ? in ones place. Add the 1 ten with the other tens.

Then add the tens. Think  3, ?, ? Write ? in tens place.

They made ? sandwiches all together.

Add and check. In each example the ones will add to more than 9, so what will you need to do?

1.	<u>49</u>	<u>58</u>	<u>17</u>	<u>39</u>	<u>28</u>	<u>16</u>	<u>42</u>	<u>29</u>
	<u>22</u>	<u>24</u>	<u>37</u>	<u>29</u>	<u>36</u>	<u>27</u>	<u>9</u>	<u>26</u>
	<u>24</u>	<u>13</u>	<u>33</u>	<u>31</u>	<u>12</u>	<u>34</u>	<u>13</u>	<u>43</u>

Adding cents is just like adding any other two-place numbers. Remember to put a dollar sign and decimal point in your answer.

2.	<u>\$.26</u>	<u>\$.35</u>	<u>\$.19</u>	<u>\$.63</u>	<u>\$.04</u>	<u>\$.02</u>	<u>\$.28</u>	<u>\$.33</u>
	<u>.39</u>	<u>.27</u>	<u>.47</u>	<u>.05</u>	<u>.30</u>	<u>.09</u>	<u>.36</u>	<u>.19</u>
	<u>.33</u>	<u>.15</u>	<u>.22</u>	<u>.12</u>	<u>.47</u>	<u>.05</u>	<u>.10</u>	<u>.20</u>

Solve the following problem. Think why you add.

3. Judy's baby brother had a birthday. She bought him a toy lamb for \$.59, a ball for \$.25, and a book for \$.10. How much did she spend for the baby's presents?



## Answers with More Than Nine Tens

THREE-PLACE SUMS. CARRYING TEN ONLY

Joe has 95 stamps, Jack has 23, and Jim has 39. How many stamps have the three boys together?

Is this an addition problem? Why?

Study the example and say each missing number. The answer is a three-place number because it has more than 9 tens.

$$\begin{array}{r} \textcolor{red}{1} \\ 95 \\ 23 \\ 39 \\ \hline 157 \end{array}$$

First add the ones. Think 5, 8, ? Write ? in ones place. Add the 1 ten with the other tens.

Then add the tens. Think  $\textcolor{red}{1}$ , 10, ?, ? Write 15. The 1 will be in hundreds place and the 5 will be in tens place. Do you see why?

Together the boys had ? stamps.



Solve the following problem.

- The mothers gave the third grade children a party. At the party they had 48 little cakes with pink icing, 36 with yellow icing, and 24 with white icing. How many cakes did this make in all?

Copy each example. Add down. Check by adding up.

2.	84	28	69	86	\$.15	\$.36	\$.03	\$.97
	75	80	34	84	.88	.67	.77	.06
	<u>29</u>	<u>58</u>	<u>54</u>	<u>16</u>	<u>.83</u>	<u>.90</u>	<u>.66</u>	<u>.01</u>



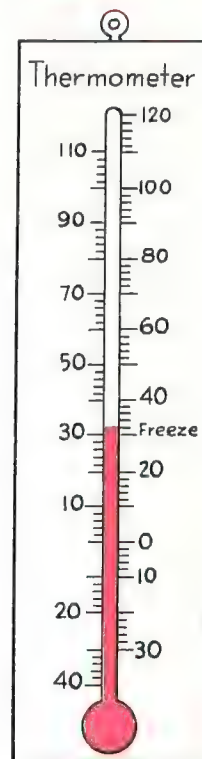
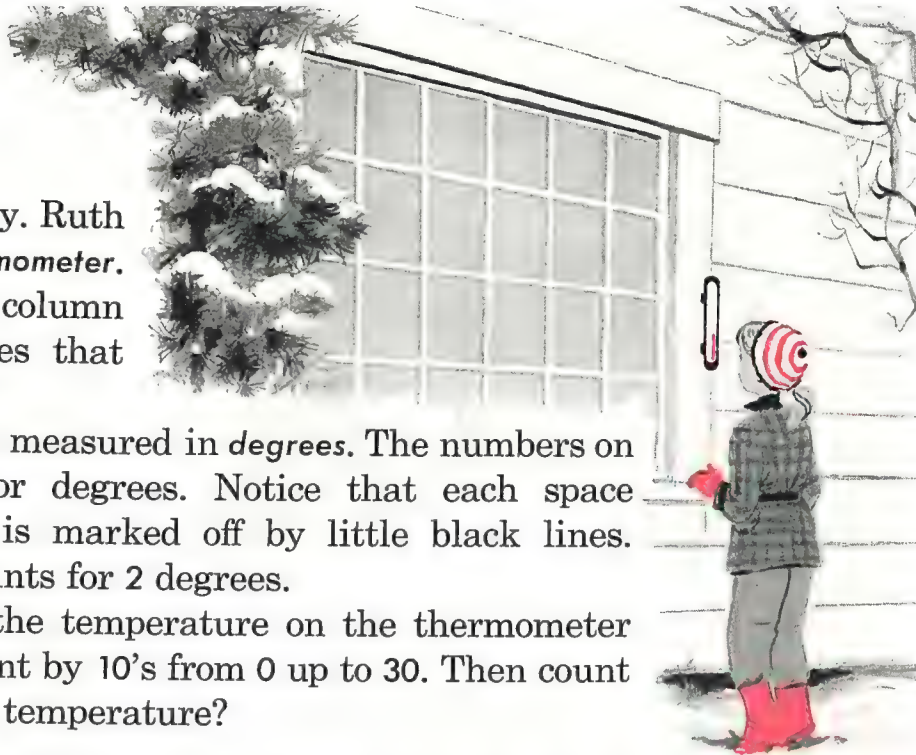
## How Cold Is It?

It was a cold day. Ruth looked at the *thermometer*. The top of the red column was at *Freeze*. Does that mean it was cold?

Temperature is measured in *degrees*. The numbers on the scale stand for degrees. Notice that each space between numbers is marked off by little black lines. Each black line counts for 2 degrees.

Can you read the temperature on the thermometer in the picture? Count by 10's from 0 up to 30. Then count by 2's. What is the temperature?

1. Find on the thermometer the place where the top of the red column would be when the temperature is 70 degrees; 90 degrees; 92 degrees; 56 degrees; 54 degrees; 55 degrees; 8 degrees; 10 degrees below 0.
2. How many degrees higher is 91 degrees than 32 degrees? You can count or subtract to find the answer. Which is easier?
3. What will be the temperature if the red column goes 19 degrees higher than 32? You can count or add to find the answer. Which is easier?
4. How many degrees will the red column fall if the temperature goes from 32 to 15 degrees? Will you add or subtract to find the answer?
5. When the temperature goes below 0 degrees, the weather is very, very cold. How far below 0 can you read on the thermometer in the picture?







## Answers Over Two Hundred

CARRYING 1 TEN ONLY, BRIDGING TO 20'S IN TENS COLUMN

Betty and Kay helped the teacher count the books. They counted 45 on the top shelf, 62 on the next, 53 on the next, and 55 on the bottom shelf. How many books were there in all?

This is an addition problem. Why?

Study the example. Say each missing number.

First add the ones. Think 5, 7, ?, ? Write ? in ones place. Add the 1 ten with the other tens.

Then add the tens. Think 1, 5, 11, 16, ? Write 21. The 2 will be in hundreds place and the 1 will be in tens place. Why? There were ? books in all.

Copy each example, add down, and check by adding up. Each answer will be more than 200, because the tens will add to 20 or more. Check each example.

1
45
62
53
55
<hr/> 215

1.	87	76	53	75	64	78	69	57	99
	37	85	93	85	80	29	60	33	52
	52	24	56	80	50	60	85	90	11
	<u>91</u>	<u>53</u>	<u>82</u>	<u>25</u>	<u>86</u>	<u>50</u>	<u>40</u>	<u>90</u>	<u>50</u>

In the following row of examples, each answer will be more than \$2.00. After you add, see if you can tell why each answer is more than \$2.00.

2.	\$.29	\$.38	\$.81	\$.98	\$.13	\$.48	\$.32	\$.25	\$.65
	.94	.91	.70	.64	.74	.90	.06	.60	.87
	.81	.71	.49	.74	.82	.33	.86	.98	.63
	<u>.31</u>	<u>.12</u>	<u>.74</u>	<u>.20</u>	<u>.56</u>	<u>.45</u>	<u>.94</u>	<u>.75</u>	<u>.04</u>

## Practice to Remember

1. Add each colored number to every number in the row beside it. Write just the answers.

3	4	34	54	24	64	84	74
4	2	52	32	12	62	22	82
5	9	29	49	69	59	89	79
6	7	17	37	27	67	47	87
7	8	38	58	88	48	28	78
8	4	14	24	54	44	34	84
9	7	47	67	87	27	57	37

Subtract. Check by adding.

2.	$\begin{array}{r} 39 \\ 7 \\ \hline \end{array}$	$\begin{array}{r} 48 \\ 8 \\ \hline \end{array}$	$\begin{array}{r} 57 \\ 6 \\ \hline \end{array}$	$\begin{array}{r} 66 \\ 3 \\ \hline \end{array}$	$\begin{array}{r} 75 \\ 1 \\ \hline \end{array}$	$\begin{array}{r} 84 \\ 2 \\ \hline \end{array}$	$\begin{array}{r} 93 \\ 3 \\ \hline \end{array}$	$\begin{array}{r} 28 \\ 5 \\ \hline \end{array}$	$\begin{array}{r} 29 \\ 1 \\ \hline \end{array}$
3.	$\begin{array}{r} 38 \\ 23 \\ \hline \end{array}$	$\begin{array}{r} 59 \\ 27 \\ \hline \end{array}$	$\begin{array}{r} 76 \\ 36 \\ \hline \end{array}$	$\begin{array}{r} 65 \\ 20 \\ \hline \end{array}$	$\begin{array}{r} 47 \\ 35 \\ \hline \end{array}$	$\begin{array}{r} 84 \\ 41 \\ \hline \end{array}$	$\begin{array}{r} 98 \\ 66 \\ \hline \end{array}$	$\begin{array}{r} 39 \\ 13 \\ \hline \end{array}$	$\begin{array}{r} 93 \\ 70 \\ \hline \end{array}$
4.	$\begin{array}{r} 236 \\ 215 \\ \hline \end{array}$	$\begin{array}{r} 985 \\ 475 \\ \hline \end{array}$	$\begin{array}{r} 759 \\ 735 \\ \hline \end{array}$	$\begin{array}{r} \$8.58 \\ 2.40 \\ \hline \end{array}$	$\begin{array}{r} \$6.07 \\ 4.02 \\ \hline \end{array}$	$\begin{array}{r} \$9.76 \\ 8.41 \\ \hline \end{array}$			

Add down. Check by adding up.

5.	$\begin{array}{r} 234 \\ 730 \\ \hline \end{array}$	$\begin{array}{r} 500 \\ 470 \\ \hline \end{array}$	$\begin{array}{r} 342 \\ 542 \\ \hline \end{array}$	$\begin{array}{r} \$3.05 \\ 6.90 \\ \hline \end{array}$	$\begin{array}{r} \$4.08 \\ 5.30 \\ \hline \end{array}$	$\begin{array}{r} \$5.02 \\ 3.13 \\ \hline \end{array}$			
6.	$\begin{array}{r} 14 \\ 12 \\ 29 \\ 12 \\ \hline \end{array}$	$\begin{array}{r} 25 \\ 15 \\ 28 \\ 31 \\ \hline \end{array}$	$\begin{array}{r} 39 \\ 16 \\ 21 \\ 12 \\ \hline \end{array}$	$\begin{array}{r} 47 \\ 13 \\ 26 \\ 12 \\ \hline \end{array}$	$\begin{array}{r} 53 \\ 17 \\ 15 \\ 13 \\ \hline \end{array}$	$\begin{array}{r} 68 \\ 14 \\ 4 \\ 13 \\ \hline \end{array}$	$\begin{array}{r} 71 \\ 8 \\ 13 \\ 3 \\ \hline \end{array}$	$\begin{array}{r} 82 \\ 5 \\ 2 \\ 2 \\ \hline \end{array}$	$\begin{array}{r} 56 \\ 8 \\ 23 \\ 10 \\ \hline \end{array}$
7.	$\begin{array}{r} 73 \\ 60 \\ 87 \\ 80 \\ \hline \end{array}$	$\begin{array}{r} 48 \\ 75 \\ 90 \\ 12 \\ \hline \end{array}$	$\begin{array}{r} 69 \\ 54 \\ 80 \\ 24 \\ \hline \end{array}$	$\begin{array}{r} 92 \\ 94 \\ 96 \\ 5 \\ \hline \end{array}$	$\begin{array}{r} 81 \\ 73 \\ 5 \\ 57 \\ \hline \end{array}$	$\begin{array}{r} \$.75 \\ .05 \\ .74 \\ .64 \\ \hline \end{array}$	$\begin{array}{r} \$.52 \\ .30 \\ .76 \\ .98 \\ \hline \end{array}$	$\begin{array}{r} \$.31 \\ .02 \\ .53 \\ .94 \\ \hline \end{array}$	$\begin{array}{r} \$.84 \\ .81 \\ .04 \\ .81 \\ \hline \end{array}$

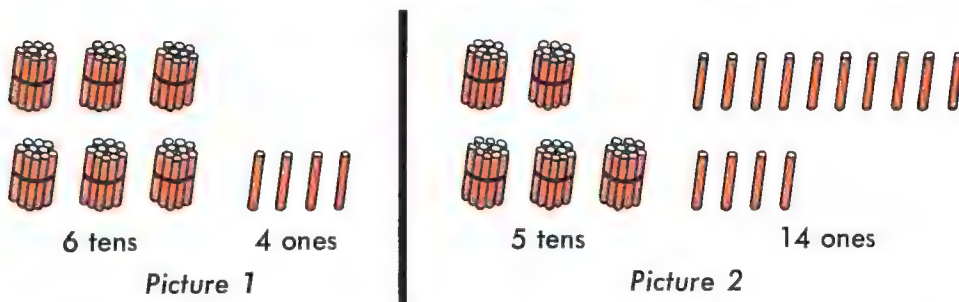
## Changing One Ten to Ten Ones

### BORROWING IN SUBTRACTION

Betty was trying to subtract 38 from 64. She did not know how to subtract 8 ones from 4 ones. She asked Ruth to help her.

Ruth said, "I will show you with some sticks."

First she showed 64 with the sticks. (See Picture 1.)



"You cannot take away 8 sticks from 4 sticks," she said. "So, take 1 of the tens and use it as 10 ones. This gives you 14 ones in all." (See Picture 2.) "This is called 'borrowing' a ten. Instead of 6 tens and 4 ones, you have 5 tens and 14 ones.

"Now subtract. 8 ones from 14 ones is 6 ones. 3 tens from 5 tens is 2 tens. The answer is 2 tens and 6 ones, or 26."

Then Ruth showed Betty how to work without sticks.

Study this example. Say each missing number.

$$\begin{array}{r} \text{5 } 14 \\ \text{6 } 4 \\ - 38 \\ \hline 26 \end{array}$$

First subtract the ones. You cannot subtract 8 from 4. Take one of the 6 tens, leaving 5 tens. Use the 1 ten as 10 ones, and make 14 ones in all. Think  $14 - 8 = \underline{\quad ? \quad}$ . Write  $\underline{\quad ? \quad}$  in ones place.

Then subtract the tens. Think  $5 - 3 = \underline{\quad ? \quad}$ . Write  $\underline{\quad ? \quad}$  in tens place.

The answer is  $\underline{\quad ? \quad}$ .

The colored numbers usually are not written, but are *kept in mind*. When you find you can keep them in mind, stop writing the numbers shown in color.

Copy each example and subtract. Check by adding.

1. 
$$\begin{array}{r} 62 \\ 28 \\ \hline \end{array}$$
 
$$\begin{array}{r} 86 \\ 67 \\ \hline \end{array}$$
 
$$\begin{array}{r} 75 \\ 37 \\ \hline \end{array}$$
 
$$\begin{array}{r} 53 \\ 26 \\ \hline \end{array}$$
 
$$\begin{array}{r} 97 \\ 39 \\ \hline \end{array}$$
 
$$\begin{array}{r} 81 \\ 25 \\ \hline \end{array}$$
 
$$\begin{array}{r} 61 \\ 42 \\ \hline \end{array}$$
 
$$\begin{array}{r} 73 \\ 25 \\ \hline \end{array}$$
 
$$\begin{array}{r} 74 \\ 47 \\ \hline \end{array}$$
2. 
$$\begin{array}{r} 91 \\ 74 \\ \hline \end{array}$$
 
$$\begin{array}{r} 72 \\ 13 \\ \hline \end{array}$$
 
$$\begin{array}{r} 85 \\ 48 \\ \hline \end{array}$$
 
$$\begin{array}{r} 96 \\ 58 \\ \hline \end{array}$$
 
$$\begin{array}{r} 84 \\ 35 \\ \hline \end{array}$$
 
$$\begin{array}{r} 93 \\ 48 \\ \hline \end{array}$$
 
$$\begin{array}{r} 65 \\ 16 \\ \hline \end{array}$$
 
$$\begin{array}{r} 97 \\ 18 \\ \hline \end{array}$$
 
$$\begin{array}{r} 62 \\ 36 \\ \hline \end{array}$$

Cents are subtracted like any other two-place numbers. Remember to put a dollar sign and decimal point in each answer.

3. 
$$\begin{array}{r} \$.51 \\ .16 \\ \hline \end{array}$$
 
$$\begin{array}{r} \$.45 \\ .29 \\ \hline \end{array}$$
 
$$\begin{array}{r} \$.94 \\ .26 \\ \hline \end{array}$$
 
$$\begin{array}{r} \$.82 \\ .57 \\ \hline \end{array}$$
 
$$\begin{array}{r} \$.63 \\ .34 \\ \hline \end{array}$$
 
$$\begin{array}{r} \$.78 \\ .59 \\ \hline \end{array}$$
 
$$\begin{array}{r} \$.94 \\ .69 \\ \hline \end{array}$$
 
$$\begin{array}{r} \$.36 \\ .17 \\ \hline \end{array}$$
 
$$\begin{array}{r} \$.95 \\ .58 \\ \hline \end{array}$$

Solve the following problems. Each time think of the reason why you subtract to get the answer.

4. The baker made 84 doughnuts. He sold all but 18. How many did he sell?
5. Tom's mother baked 36 cookies. She has 19 left. The boys ate the rest. How many cookies did the boys eat?
6. On Monday Jack counted 43 bicycles outside the school. On Tuesday he counted 17. On Tuesday there were how many fewer bicycles outside the school than on Monday?
7. Bill had \$.52 in his pocket when he went out to play. He lost some of his money while he was playing. He counted what was left and found he had only \$.35. How much money did he lose?







## Subtracting One-Place Numbers from Two-Place Numbers

BORROWING 1 TEN

Jack planted some bean seeds. Just 35 came up. One night a rabbit ate the tops of all but 9 plants. How many tops were eaten?

Would you subtract to answer the question? Why?

Study the example. Say each missing number.

First subtract the ones. Can you subtract 9 from 5?

Change 1 of the 3 tens to 10 ones, leaving 2 tens and making 15 ones. Think  $15 - 9 = ?$  Write  $?$  in ones place.

There are no tens to subtract from the  $2$  in tens column. Write  $?$  in tens place.

The tops of  $?$  plants were eaten.

Copy each example, subtract, and check.

- |          |          |          |          |          |          |          |          |          |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 72       | 64       | 21       | 46       | 83       | 53       | 94       | 65       | 78       |
| <u>8</u> | <u>6</u> | <u>9</u> | <u>7</u> | <u>5</u> | <u>9</u> | <u>8</u> | <u>6</u> | <u>9</u> |

$$\begin{array}{r} 2\ 15 \\ 3\ 5 \\ -9 \\ \hline 2\ 6 \end{array}$$

Study this example. Say each missing number.

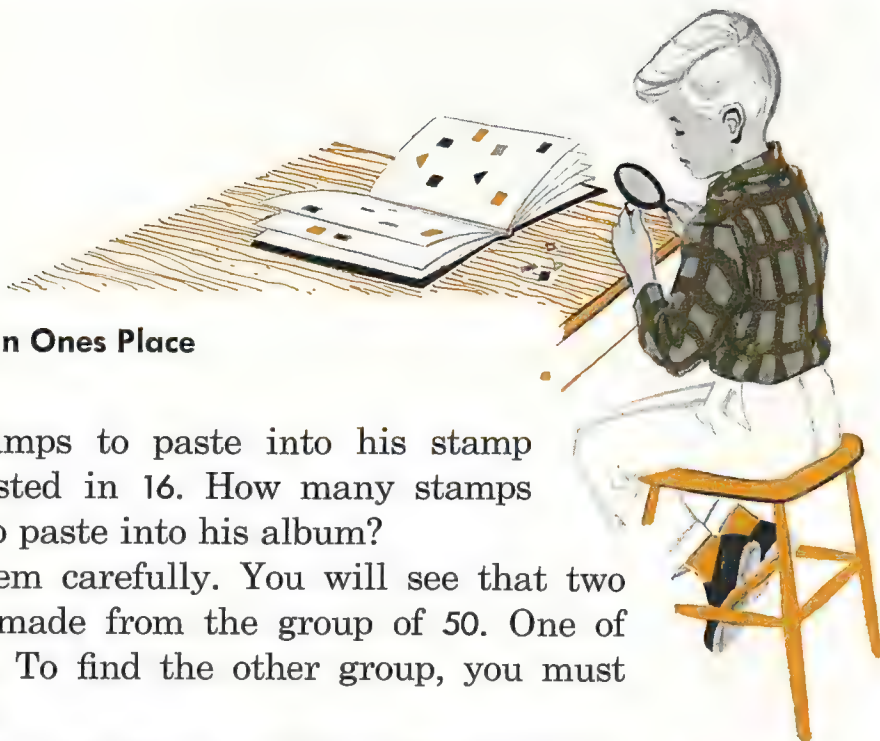
First subtract the ones. You cannot subtract 8 from 0. Change 1 of the 4 tens to 10 ones, leaving  $?$  tens and making  $?$  ones. Think  $10 - 8 = ?$  Write  $?$  in ones place.

There are no tens to subtract. Write  $?$  in tens place.

Copy each example, subtract, and check.

- |          |          |          |          |          |          |          |          |          |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 60       | 70       | 50       | 30       | 20       | 90       | 80       | 40       | 70       |
| <u>3</u> | <u>4</u> | <u>9</u> | <u>7</u> | <u>6</u> | <u>5</u> | <u>8</u> | <u>6</u> | <u>7</u> |

$$\begin{array}{r} 3\ 10 \\ 4\ 0 \\ -8 \\ \hline 3\ 2 \end{array}$$



## Borrowing with Zero in Ones Place

BORROWING 1 TEN

Bob has 50 stamps to paste into his stamp album. He has pasted in 16. How many stamps does he still have to paste into his album?

Read the problem carefully. You will see that two groups have been made from the group of 50. One of these groups is 16. To find the other group, you must subtract 16 from 50.

Study the example below. Say each missing number.

First subtract the ones. You cannot subtract 6 from 0. Change 1 of the 5 tens to 10 ones, leaving   ?   tens. Think

10 - 6 =   ?   Write   ?   in ones place.

Then subtract the tens. Think 4 - 1 =   ?   Write   ?   in tens place.

Bob still has   ?   stamps to paste in his album.

Solve the following problem.

- Sue is weaving a pot holder. She must weave 30 rows in all. She has done 18. How many rows does she still have to do?

Copy each example, subtract, and check.

$$\begin{array}{r} 40 \\ - 23 \\ \hline \end{array} \quad \begin{array}{r} 90 \\ - 46 \\ \hline \end{array} \quad \begin{array}{r} 70 \\ - 57 \\ \hline \end{array} \quad \begin{array}{r} 60 \\ - 32 \\ \hline \end{array} \quad \begin{array}{r} 80 \\ - 64 \\ \hline \end{array} \quad \begin{array}{r} 50 \\ - 28 \\ \hline \end{array} \quad \begin{array}{r} 30 \\ - 15 \\ \hline \end{array} \quad \begin{array}{r} 90 \\ - 77 \\ \hline \end{array} \quad \begin{array}{r} 70 \\ - 21 \\ \hline \end{array}$$

$$\begin{array}{r} 30 \\ - 19 \\ \hline \end{array} \quad \begin{array}{r} 50 \\ - 12 \\ \hline \end{array} \quad \begin{array}{r} 20 \\ - 11 \\ \hline \end{array} \quad \begin{array}{r} 60 \\ - 24 \\ \hline \end{array} \quad \begin{array}{r} 90 \\ - 53 \\ \hline \end{array} \quad \begin{array}{r} 70 \\ - 37 \\ \hline \end{array} \quad \begin{array}{r} 40 \\ - 18 \\ \hline \end{array} \quad \begin{array}{r} 80 \\ - 36 \\ \hline \end{array} \quad \begin{array}{r} 60 \\ - 45 \\ \hline \end{array}$$

4	10
5	0
-	16
<hr/>	
3	4



	TENS (DIMES)	ONES (PENNIES)	
73¢	0000000	000	
73¢ - 65¢	000000	00000	000000000 = 8¢

### A Zero Sometimes Is Not Written

Jack had 73¢. He spent 65¢. How many cents did he have left?

Jack drew a picture to show how he subtracted.

Study the example below. Say each missing number. Then see if you can explain Jack's picture.

<div style="display: inline-block; text-align: left;"> <div style="border-bottom: 1px solid black; padding-bottom: 2px;"> <span style="background-color: #ff00ff; padding: 0 2px;">6</span> <span style="background-color: #ff00ff; padding: 0 2px;">13</span> </div> <div style="display: flex; justify-content: space-between;"> <span style="font-size: 1.5em;">7</span> <span style="font-size: 1.5em;">3¢</span> </div> <div style="border-bottom: 1px solid black; padding-bottom: 2px;"> <span style="font-size: 1.5em;">-6</span> <span style="font-size: 1.5em;">5¢</span> </div> <div style="display: flex; justify-content: space-between;"> <span style="font-size: 1.5em;">8</span> <span style="font-size: 1.5em;">¢</span> </div> </div>
---

First subtract the ones. You cannot subtract 5 from 3. Change one of the 7 tens to 10 ones, leaving 6 tens and making   ?   ones. 13 - 5 =   ?   Write   ?   in ones place.

Then subtract the tens. 6 - 6 =   ?   Do *not* write the 0 in tens place. It is not needed. Do you see why?

Jack had   ?  ¢ left.

Solve the following problems. Each time think why you subtract to get the answer.

1. It rained in April. It rained 21 of the 30 days. It did not rain on how many of the 30 days?
2. There are 41 children in Ann's grade at school. One day 32 of the children went out for recess. How many did not go out?

Copy each example and subtract. Check by adding.

- |    |           |           |           |           |           |           |           |           |           |
|----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 3. | 95        | 42        | 51        | 67        | 86        | 94        | 75        | 63        | 98        |
|    | <u>88</u> | <u>39</u> | <u>42</u> | <u>59</u> | <u>78</u> | <u>86</u> | <u>67</u> | <u>58</u> | <u>89</u> |
- 
- |    |           |           |           |           |           |           |           |           |           |
|----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 4. | 37        | 25        | 84        | 53        | 72        | 41        | 95        | 60        | 22        |
|    | <u>28</u> | <u>19</u> | <u>75</u> | <u>46</u> | <u>64</u> | <u>34</u> | <u>86</u> | <u>53</u> | <u>17</u> |



## Spring Gardens

ADDING THREE-PLACE NUMBERS; CARRYING 1 TEN

Jane's father set out some tomato plants. He set out 237 plants on one day and 147 plants on the next day. How many plants in all did he set out?

Would you add to find the answer? Why?

Study the example. Say each missing number.

First add the ones. Think 7 and 7 = ? Write ? in ones place. Add the 1 ten in the next step.

Next add the tens. Think **1**, 4, ? Write ? in tens place.

Then add the hundreds. Think 2, ? Write ? in hundreds place.

Jane's father set out ? plants in all.

Check by doing each step again.

Solve the following problems. Each time think why you should add to get the answer.

1. Jane helped her father. She watered 112 plants just before supper and 109 plants after supper. How many plants did Jane water?
2. Bob and Dick helped plant potatoes. Bob planted 115 hills and Dick planted 117 hills. How many hills of potatoes did the boys plant in all?

Copy each example, add, and check.

3. 

236	228	145	554	427	869	346	217
<u>147</u>	<u>464</u>	<u>316</u>	<u>229</u>	<u>333</u>	<u>127</u>	<u>244</u>	<u>727</u>
4. 

439	207	128	369	709	306	445	606
<u>438</u>	<u>308</u>	<u>228</u>	<u>501</u>	<u>259</u>	<u>309</u>	<u>446</u>	<u>206</u>

1
237
+ 147
<hr/>
384





## Subtracting Three-Place Numbers

BORROWING 1 TEN

A late frost killed some of the 384 tomato plants that Jane helped her father to plant. The day after the frost Jane found 147 of the plants were all right. How many plants had the frost killed?

Would you subtract to find the answer? Why?

Study the example. Say each missing number.

First subtract the ones. You cannot subtract 7 from 4. Change 1 of the 8 tens to 10 ones, leaving   ?   tens and making   ?   ones. Think **14** - 7 =   ?   Write   ?   in ones place.

Next subtract the tens. Think **7** - 4 =   ?   Write   ?   in tens place.

Then subtract the hundreds. Think 3 - 1 =   ?   Write   ?   in hundreds place.

The frost killed   ?   plants.

Solve the following problems. Each time think why you subtract to get the answer.

1. Ann's father had 236 little chickens. There were 129 black ones. The rest were yellow. How many were yellow?
2. Last fall Ted helped his mother plant 210 crocus bulbs. This spring Ted counted 104 already in blossom. How many have not yet blossomed?

Copy each example and subtract. Check by adding.

- |    |  |  |  |  |  |  |  |  |
|----|--|--|--|--|--|--|--|--|
| 3. | $\begin{array}{r} 383 \\ -147 \\ \hline \end{array}$ | $\begin{array}{r} 692 \\ -464 \\ \hline \end{array}$ | $\begin{array}{r} 461 \\ -316 \\ \hline \end{array}$ | $\begin{array}{r} 783 \\ -229 \\ \hline \end{array}$ | $\begin{array}{r} 760 \\ -333 \\ \hline \end{array}$ | $\begin{array}{r} 996 \\ -127 \\ \hline \end{array}$ | $\begin{array}{r} 590 \\ -244 \\ \hline \end{array}$ | $\begin{array}{r} 944 \\ -727 \\ \hline \end{array}$ |
| 4. | $\begin{array}{r} 877 \\ -438 \\ \hline \end{array}$ | $\begin{array}{r} 515 \\ -308 \\ \hline \end{array}$ | $\begin{array}{r} 356 \\ -228 \\ \hline \end{array}$ | $\begin{array}{r} 870 \\ -501 \\ \hline \end{array}$ | $\begin{array}{r} 968 \\ -259 \\ \hline \end{array}$ | $\begin{array}{r} 615 \\ -309 \\ \hline \end{array}$ | $\begin{array}{r} 891 \\ -446 \\ \hline \end{array}$ | $\begin{array}{r} 812 \\ -206 \\ \hline \end{array}$ |

## Baseball Season

SUBTRACTING DOLLARS AND CENTS; BORROWING 1 TEN

Mike was given \$9.70 for his birthday. He wanted to buy a baseball bat, but he spent \$8.25 for clothes. How much money was left to put toward a baseball bat?

Would this be a subtraction problem? Why?

Subtracting dollars and cents is like subtracting other three-place numbers.

Study the example. Say each missing number.

First subtract the ones. You cannot subtract 5 from 0. Change 1 of the 7 tens to 10 ones, leaving   ?   tens. Think  $10 - 5 = \underline{\quad}$ . Write   ?   in ones place.

Then subtract the tens. Think  $6 - 2 = \underline{\quad}$ . Write   ?   in tens place.

Then subtract the hundreds. Think  $9 - 8 = \underline{\quad}$ . Write   ?   in hundreds place.

Now put in dollar signs and decimal points. Why?

Mike had   ?   dollars and   ?   cents left to put toward a baseball bat.

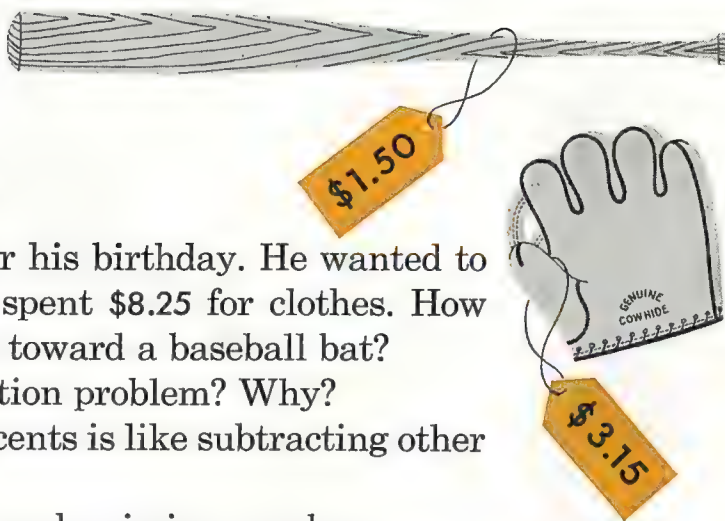
Solve the following problems. Each time think why you should subtract to get the answer.

1. Bill has \$5.70 to spend. If he buys a baseball mitt for \$3.15, how much can he spend on other things?
2. Joe earned \$3.42 selling papers. He spent \$1.25 for a ticket to the ball game, and put the rest of his money in his bank. How much did he put in his bank?

Copy each example, subtract, and check.

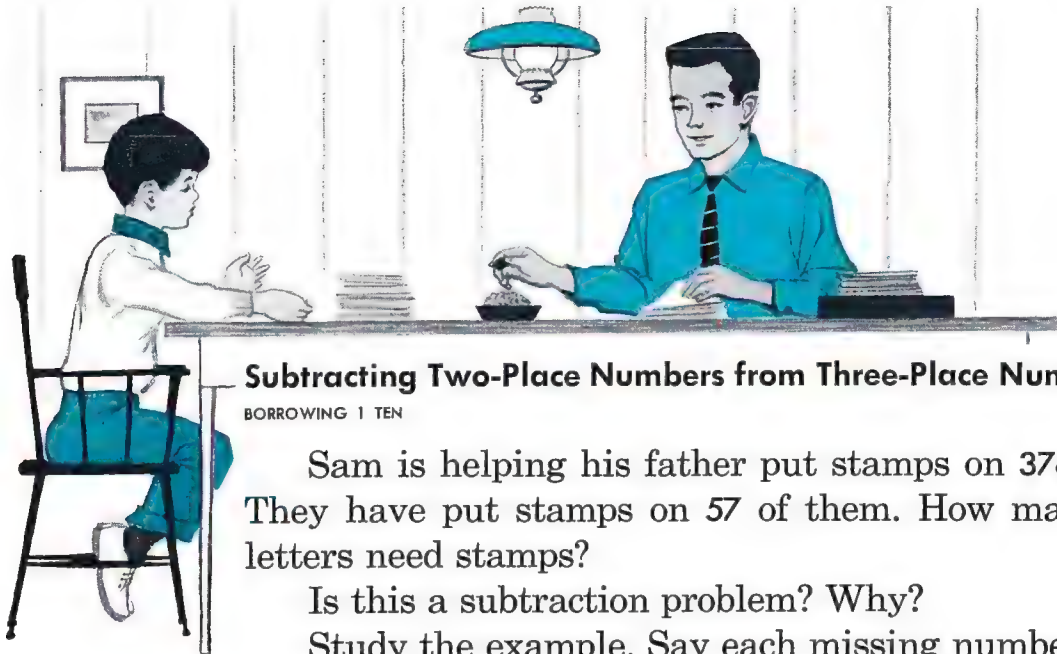
3. 

\$5.97	\$8.65	\$2.70	\$1.36	\$4.14	\$3.23	\$9.81
<u>  3.38  </u>	<u>  5.49  </u>	<u>  1.53  </u>	<u>  1.19  </u>	<u>  2.06  </u>	<u>  3.18  </u>	<u>  3.45  </u>



$$\begin{array}{r} 6.10 \\ 970 \\ -825 \\ \hline 145 \end{array}$$

$$\begin{array}{r} 6.10 \\ \$9.70 \\ -\$8.25 \\ \hline \$1.45 \end{array}$$



## Subtracting Two-Place Numbers from Three-Place Numbers

BORROWING 1 TEN

Sam is helping his father put stamps on 376 letters. They have put stamps on 57 of them. How many more letters need stamps?

Is this a subtraction problem? Why?

Study the example. Say each missing number.

First subtract the ones. You cannot subtract 7 from 6.

Change 1 of the 7 tens to 10 ones, leaving   ?   tens and making   ?   ones. Think **16** - 7 =   ?   Write   ?   in ones place.

Next subtract the tens. Think **6** - 5 =   ?   Write   ?   in tens place.

There are no hundreds to subtract from the 3 hundreds. Write   ?   in hundreds place.

Solve the following problem. Think why it is a subtraction problem.

1. There were 261 children in Ellen's school. A teacher took 39 of them on a trip. This left how many children still in school?

Copy each example, subtract, and check.

2. 

872	564	351	470	287	683	990	840
<u>49</u>	<u>27</u>	<u>36</u>	<u>34</u>	<u>59</u>	<u>35</u>	<u>28</u>	<u>12</u>
3. 

181	392	564	773	940	257	485	636
<u>63</u>	<u>35</u>	<u>49</u>	<u>36</u>	<u>27</u>	<u>28</u>	<u>46</u>	<u>18</u>

## Subtracting Cents from Dollars and Cents

BORROWING 1 TEN

Judy is saving her money for roller skates. They cost \$4.75 a pair. Judy has saved \$.58. How much more must she save to get the roller skates?

Is this a subtraction problem? Why?

Subtract dollars and cents as you would any three-place number.

Study the example. Say each missing number.

First subtract the ones. You cannot subtract 8 from 5. Change 1 of the 7 tens to 10 ones, leaving   ?   tens and making   ?   ones. Think  $15 - 8 = \underline{\quad}$  Write   ?   in ones place.

Next subtract the tens. Think  $6 - 5 = \underline{\quad}$  Write   ?   in tens place.

There are no hundreds to subtract from 4. Write   ?   in hundreds place.

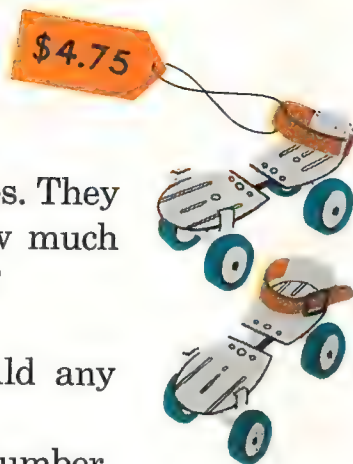
The answer is   ?  .

Write the dollar signs and decimal points to show that the numbers mean dollars and cents.

Is the answer sensible? Does Judy still need to save more than \$4?

Judy must save   ?   dollars and   ?   cents.

Check the answer by adding.



$$\begin{array}{r} 4 \overline{) 475} \\ - 58 \\ \hline 417 \end{array}$$

$$\begin{array}{r} \$4.75 \\ - .58 \\ \hline \$4.17 \end{array}$$

Copy each example, subtract, and check.

$$\begin{array}{r} 1. \quad \$8.66 \quad \$5.91 \quad \$3.50 \quad \$6.83 \quad \$1.47 \quad \$4.72 \quad \$2.30 \\ \quad \underline{.48} \quad \underline{.77} \quad \underline{.24} \quad \underline{.45} \quad \underline{.29} \quad \underline{.37} \quad \underline{.13} \end{array}$$

$$\begin{array}{r} 2. \quad \$9.65 \quad \$7.47 \quad \$4.93 \quad \$6.64 \quad \$5.78 \quad \$3.81 \quad \$8.96 \\ \quad \underline{.49} \quad \underline{.28} \quad \underline{.57} \quad \underline{.26} \quad \underline{.39} \quad \underline{.55} \quad \underline{.57} \end{array}$$



## Practice to Remember

Do not copy the examples. Write answers on folded paper. Add down. Check by adding up.

1.	7	5	9	8	7	40	25	3	14
	5	7	7	6	8	15	21	20	2
	9	7	9	9	7	3	30	5	3
	<u>8</u>	<u>8</u>	<u>8</u>	<u>9</u>	<u>9</u>	<u>40</u>	<u>2</u>	<u>1</u>	<u>70</u>

2.	25	32	34	43	51	15	26	62
	29	16	28	27	18	38	38	19
	<u>14</u>	<u>37</u>	<u>14</u>	<u>26</u>	<u>15</u>	<u>16</u>	<u>23</u>	<u>19</u>

3.	25	36	47	58	69	72	83	94
	84	95	73	84	84	86	84	92
	43	42	54	63	73	89	98	67
	<u>57</u>	<u>45</u>	<u>53</u>	<u>31</u>	<u>12</u>	<u>20</u>	<u>32</u>	<u>35</u>

Add. Check by doing each step again.

4.	123	234	345	456	567	678	789
	<u>456</u>	<u>412</u>	<u>132</u>	<u>401</u>	<u>320</u>	<u>311</u>	<u>200</u>

5.	\$2.01	\$1.43	\$3.20	\$4.75	\$ .52
	<u>3.75</u>	<u>6.05</u>	<u>3.65</u>	<u>.14</u>	<u>8.15</u>

6.	572	638	469	165	806	347	254
	<u>146</u>	<u>249</u>	<u>507</u>	<u>417</u>	<u>138</u>	<u>528</u>	<u>337</u>

7.	\$5.43	\$4.52	\$3.61	\$2.35	\$1.28
	<u>1.39</u>	<u>.18</u>	<u>2.09</u>	<u>2.16</u>	<u>.48</u>

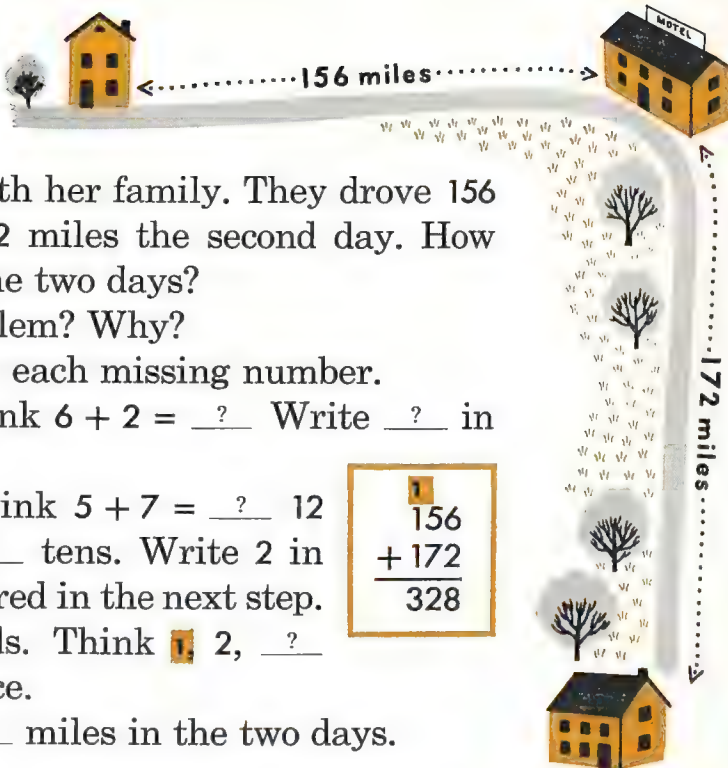
Subtract. Check by adding.

8.	673	887	976	582	944	775	591
	<u>146</u>	<u>249</u>	<u>507</u>	<u>417</u>	<u>138</u>	<u>528</u>	<u>337</u>

9.	\$5.70	\$1.76	\$4.70	\$4.51	\$6.82
	<u>2.09</u>	<u>.48</u>	<u>.18</u>	<u>2.16</u>	<u>1.39</u>

# Adding Three-Place Numbers

CARRYING 1 HUNDRED



Mary went on a trip with her family. They drove 156 miles the first day and 172 miles the second day. How far did they drive during the two days?

Is this an addition problem? Why?

Study the example. Say each missing number.

First add the ones. Think  $6 + 2 = \underline{\quad}$  Write  $\underline{\quad}$  in ones place.

Next add the tens. Think  $5 + 7 = \underline{\quad}$  12 tens =  $\underline{\quad}$  hundred and  $\underline{\quad}$  tens. Write 2 in tens place. Add the 1 hundred in the next step.

$$\begin{array}{r} 1 \\ 156 \\ + 172 \\ \hline 328 \end{array}$$

Then add the hundreds. Think 1, 2,  $\underline{\quad}$  Write  $\underline{\quad}$  in hundreds place.

Mary's family drove  $\underline{\quad}$  miles in the two days.

Solve the following problem. Think why you add to get the answer.

- Judy went 260 miles in a plane and then 180 miles on a train to get to her grandfather's ranch. Her trip by plane and train was how many miles in all?

Copy each example, add, and check.

$$\begin{array}{r} 2. \quad \begin{array}{r} 128 \\ 291 \\ \hline \end{array} \quad \begin{array}{r} 397 \\ 132 \\ \hline \end{array} \quad \begin{array}{r} 231 \\ 285 \\ \hline \end{array} \quad \begin{array}{r} 142 \\ 697 \\ \hline \end{array} \quad \begin{array}{r} 251 \\ 471 \\ \hline \end{array} \quad \begin{array}{r} 579 \\ 160 \\ \hline \end{array} \quad \begin{array}{r} 271 \\ 340 \\ \hline \end{array} \end{array}$$

$$\begin{array}{r} 3. \quad \begin{array}{r} 260 \\ 561 \\ \hline \end{array} \quad \begin{array}{r} 550 \\ 382 \\ \hline \end{array} \quad \begin{array}{r} 771 \\ 158 \\ \hline \end{array} \quad \begin{array}{r} 481 \\ 273 \\ \hline \end{array} \quad \begin{array}{r} 396 \\ 281 \\ \hline \end{array} \quad \begin{array}{r} 380 \\ 364 \\ \hline \end{array} \quad \begin{array}{r} 465 \\ 490 \\ \hline \end{array} \end{array}$$

$$\begin{array}{r} 4. \quad \begin{array}{r} \$3.80 \\ 4.26 \\ \hline \end{array} \quad \begin{array}{r} \$4.98 \\ 1.10 \\ \hline \end{array} \quad \begin{array}{r} \$5.50 \\ 2.57 \\ \hline \end{array} \quad \begin{array}{r} \$ .64 \\ 3.85 \\ \hline \end{array} \quad \begin{array}{r} \$ .90 \\ 5.68 \\ \hline \end{array} \quad \begin{array}{r} \$ .80 \\ 7.80 \\ \hline \end{array} \end{array}$$

$$\begin{array}{r} 5. \quad \begin{array}{r} \$ .17 \\ 4.90 \\ \hline \end{array} \quad \begin{array}{r} \$ .73 \\ 1.86 \\ \hline \end{array} \quad \begin{array}{r} \$ .85 \\ 2.94 \\ \hline \end{array} \quad \begin{array}{r} \$ .30 \\ 3.78 \\ \hline \end{array} \quad \begin{array}{r} \$ .96 \\ 5.53 \\ \hline \end{array} \quad \begin{array}{r} \$ .95 \\ 8.90 \\ \hline \end{array} \end{array}$$

## Subtracting Three-Place Numbers

BORROWING 1 HUNDRED

Mary had a pet calf that weighed 172 pounds. Tom had a larger calf that weighed 328 pounds. What is the difference in weight of the two calves?

Do you add or subtract to find the difference?

Study the example. Say each missing number.

First subtract the ones. Think  $8 - 2 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in ones place.

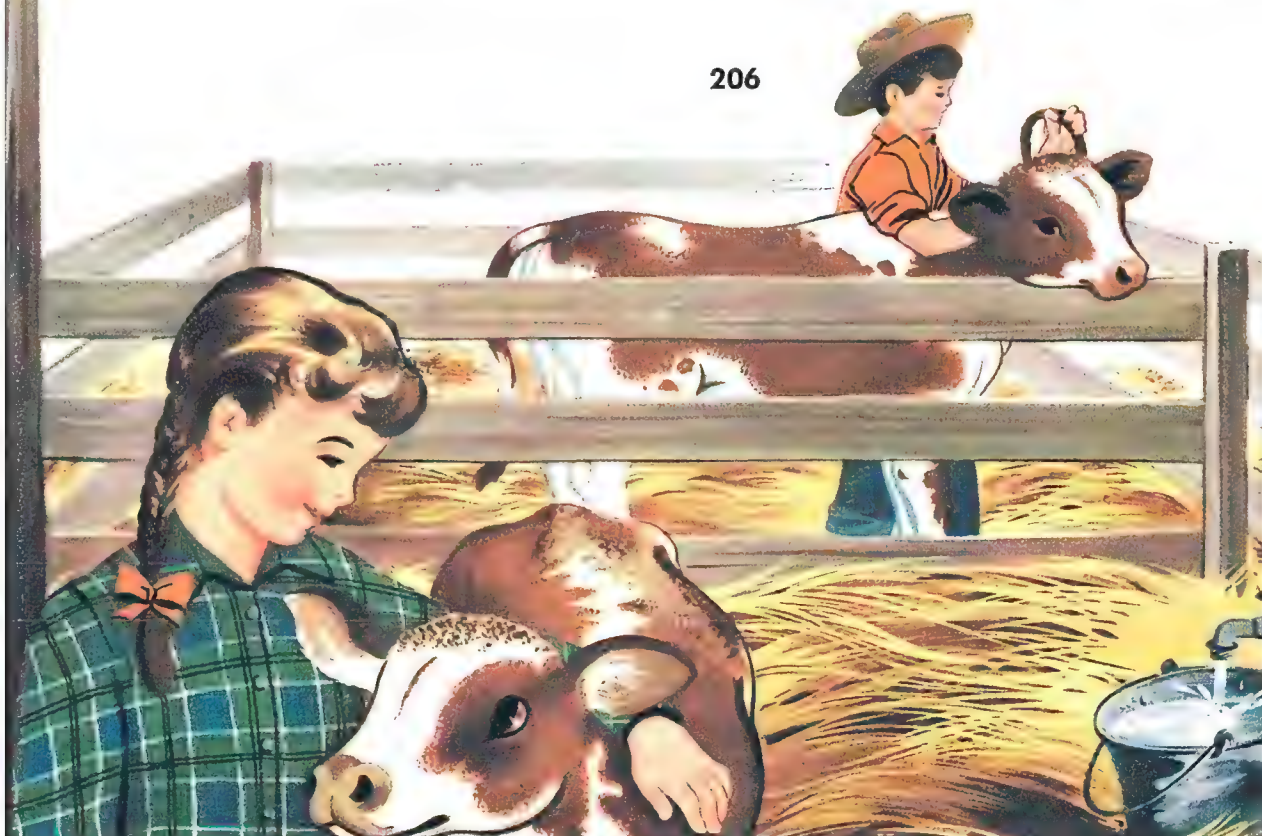
Next subtract the tens. You cannot subtract 7 from 2. Change 1 of the 3 hundreds to 10 tens, leaving  $\underline{\quad ? \quad}$  hundreds and making 12 tens. Think  $\underline{12} - 7 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in tens place.

Then subtract the hundreds. Think  $\underline{2} - 1 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in hundreds place.

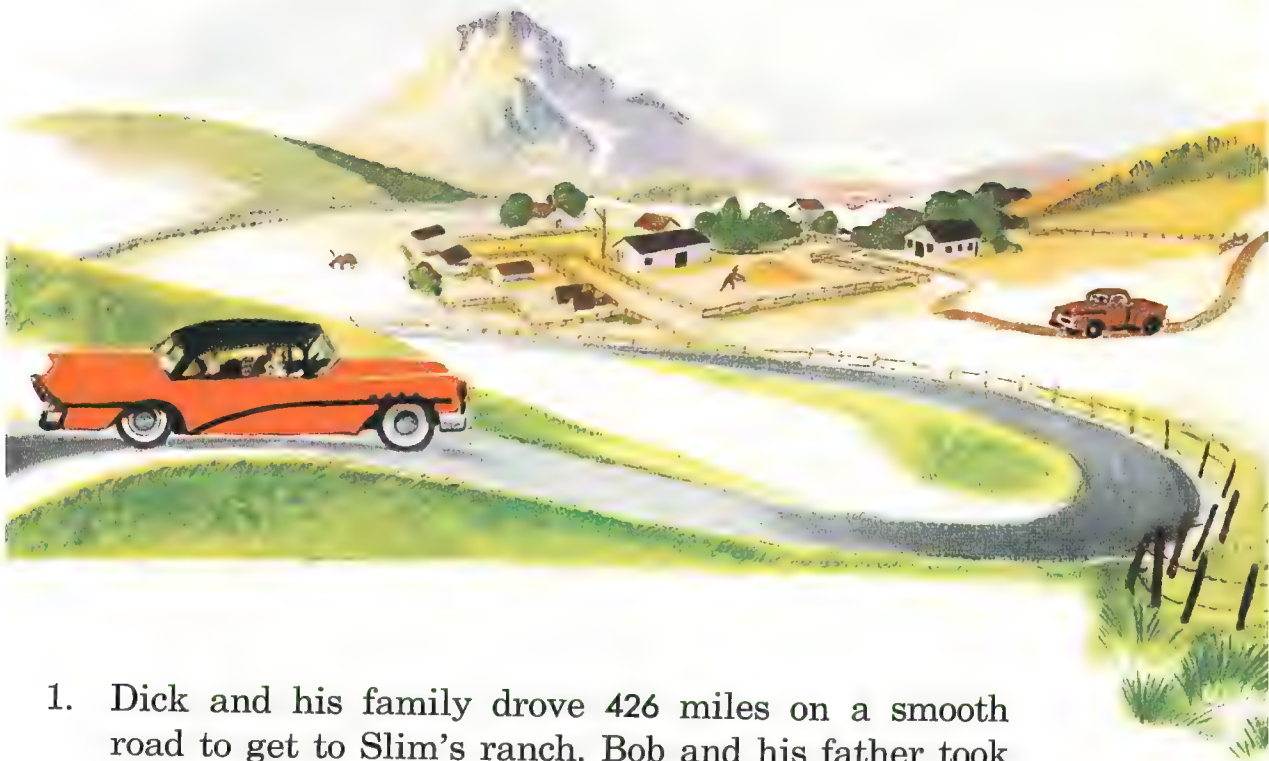
The difference in weight of the calves is  $\underline{\quad ? \quad}$  pounds.

$$\begin{array}{r} \text{2 12} \\ 328 \\ - 172 \\ \hline 156 \end{array}$$

206







1. Dick and his family drove 426 miles on a smooth road to get to Slim's ranch. Bob and his father took a shorter but rougher road and drove 290 miles to get to the ranch. What is the difference in miles between the two ways of going to the ranch?
2. Joan looked at two dresses in the store. One dress cost \$2.60. The other cost \$4.10. What was the difference in cost of the two dresses?

Copy each example and subtract. Check by adding.

- |    |   |   |   |   |   |   |   |
|----|---|---|---|---|---|---|---|
| 3. | $\begin{array}{r} 516 \\ 285 \\ \hline \end{array}$     | $\begin{array}{r} 722 \\ 471 \\ \hline \end{array}$     | $\begin{array}{r} 529 \\ 132 \\ \hline \end{array}$     | $\begin{array}{r} 839 \\ 697 \\ \hline \end{array}$     | $\begin{array}{r} 419 \\ 291 \\ \hline \end{array}$     | $\begin{array}{r} 739 \\ 160 \\ \hline \end{array}$     | $\begin{array}{r} 611 \\ 340 \\ \hline \end{array}$ |
| 4. | $\begin{array}{r} 929 \\ 158 \\ \hline \end{array}$     | $\begin{array}{r} 677 \\ 281 \\ \hline \end{array}$     | $\begin{array}{r} 955 \\ 490 \\ \hline \end{array}$     | $\begin{array}{r} 932 \\ 382 \\ \hline \end{array}$     | $\begin{array}{r} 754 \\ 273 \\ \hline \end{array}$     | $\begin{array}{r} 821 \\ 561 \\ \hline \end{array}$     | $\begin{array}{r} 744 \\ 364 \\ \hline \end{array}$ |
| 5. | $\begin{array}{r} \$8.07 \\ 2.57 \\ \hline \end{array}$ | $\begin{array}{r} \$6.58 \\ 4.68 \\ \hline \end{array}$ | $\begin{array}{r} \$6.08 \\ 1.10 \\ \hline \end{array}$ | $\begin{array}{r} \$4.49 \\ 2.85 \\ \hline \end{array}$ | $\begin{array}{r} \$8.06 \\ 4.26 \\ \hline \end{array}$ | $\begin{array}{r} \$8.60 \\ 5.80 \\ \hline \end{array}$ |   |



## Subtracting Two-Place Numbers from Three-Place Numbers

BORROWING 1 HUNDRED

Some men were washing windows in the big apartment house where Sam lives. One of the men told Sam they had already washed 73 of the 428 windows. How many windows still had to be washed?

Would you find the answer by subtracting? Why? Study the example. Say each missing number.

First subtract the ones. Think  $8 - 3 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in ones place.

Next subtract the tens. You cannot subtract 7 from 2. Change 1 of the 4 hundreds to 10 tens, leaving  $\underline{\quad ? \quad}$  hundreds and making  $\underline{\quad ? \quad}$  tens. Think  $\underline{\quad 12 \quad} - 7 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in tens place.

There are no hundreds to subtract from the  $\underline{\quad 3 \quad}$  in hundreds column. Write  $\underline{\quad ? \quad}$  in hundreds place.

There were  $\underline{\quad ? \quad}$  windows still to be washed.

Solve these problems.

1. Ted had 215 marbles. He gave 30 of them to a friend. How many marbles did Ted have then?
2. Mary had 325 buttons in her collection. She gave away 40 of them. This left how many buttons?

Copy each example and subtract. Check by adding.

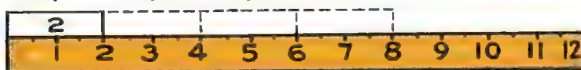
- |    |  |  |  |  |  |  |  |
|----|--|--|--|--|--|--|--|
| 3. | $\begin{array}{r} 516 \\ - 82 \\ \hline \end{array}$     | $\begin{array}{r} 437 \\ - 54 \\ \hline \end{array}$     | $\begin{array}{r} 629 \\ - 73 \\ \hline \end{array}$     | $\begin{array}{r} 308 \\ - 26 \\ \hline \end{array}$     | $\begin{array}{r} 715 \\ - 42 \\ \hline \end{array}$     | $\begin{array}{r} 903 \\ - 30 \\ \hline \end{array}$     | $\begin{array}{r} 844 \\ - 61 \\ \hline \end{array}$     |
| 4. | $\begin{array}{r} 622 \\ - 51 \\ \hline \end{array}$     | $\begin{array}{r} 341 \\ - 81 \\ \hline \end{array}$     | $\begin{array}{r} 534 \\ - 72 \\ \hline \end{array}$     | $\begin{array}{r} 756 \\ - 64 \\ \hline \end{array}$     | $\begin{array}{r} 465 \\ - 95 \\ \hline \end{array}$     | $\begin{array}{r} 217 \\ - 25 \\ \hline \end{array}$     | $\begin{array}{r} 989 \\ - 97 \\ \hline \end{array}$     |
| 5. | $\begin{array}{r} \$3.25 \\ - .83 \\ \hline \end{array}$ | $\begin{array}{r} \$8.15 \\ - .35 \\ \hline \end{array}$ | $\begin{array}{r} \$4.70 \\ - .90 \\ \hline \end{array}$ | $\begin{array}{r} \$9.38 \\ - .63 \\ \hline \end{array}$ | $\begin{array}{r} \$5.73 \\ - .82 \\ \hline \end{array}$ | $\begin{array}{r} \$7.62 \\ - .70 \\ \hline \end{array}$ | $\begin{array}{r} \$6.05 \\ - .44 \\ \hline \end{array}$ |

## Using Measures

READINESS FOR MEASUREMENT DIVISION

You can learn many things about numbers if you study a ruler. Make a card 2 inches long and write 2 on it. Put the card against your *ruler*. Start at the left and move the card in steps, as shown by the picture below. Count the steps as you move the card.

Step 1 Step 2 Step 3 Step 4

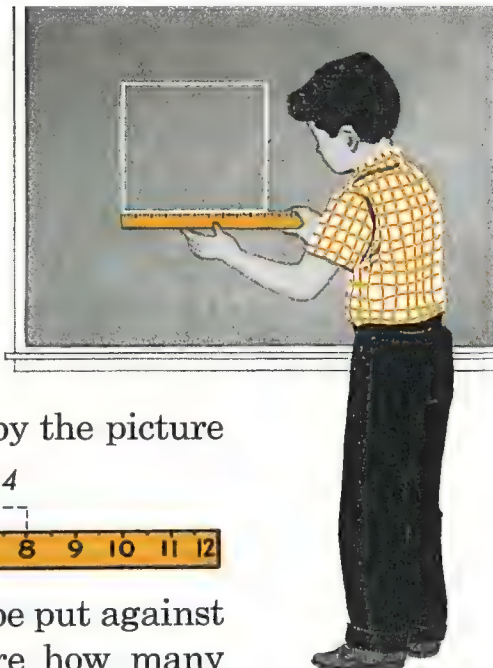


- To get to 8 on the ruler, the card would be put against the ruler 4 times. This shows there are how many twos in 8?   ?   twos = 8
- How many times would you put the card against the ruler to get to 6? to 10? to 12?  
  ?   twos = 6      ?   twos = 10      ?   twos = 12  
  ?   twos = 4      ?   two = 2

Now take a *yardstick* and use it to measure in *yards*.



- Measure the length of the schoolroom in yards. Does it come out even, or is there some left over?  
Say the missing number in each sentence below.
- The schoolroom is about   ?   yards long.
- The yardstick is marked into   ?   inches.
- Your foot ruler is marked into   ?   inches.
- Measure the yardstick with your foot ruler.  
1 yard =   ?   feet
- When you measured the yardstick with your ruler, you were also using 12 inches as a measure. You were finding out that 36 =   ?   twelves.



## Making Change by Addition

Dick bought a dozen eggs for 58¢. He gave the storekeeper 75¢. The storekeeper gave Dick the eggs, saying “58.” Then he gave him two pennies, saying “59, 60.” Then he gave him a dime, saying “70.” Last, he gave him a nickel, saying “75.” Why did he start with 58? Why did he end with 75?

Dick counted his change by adding, in cents: a dime, a nickel, and 2 pennies. He said, “Ten, fifteen, seventeen.”

To be sure that 17¢ was the right change, he checked it by subtraction. He said to himself,

“I paid the man 75¢.

The eggs cost 58¢.

The difference is 17¢. My change is right.”





Study each of the following rows. Find how much change there is by addition. Check by subtraction to make sure that the change is right. Write the subtraction example used for each row.

<i>Money paid</i>	<i>Price</i>	<i>Change</i>
1. 75¢	66¢	4 pennies, 1 nickel
2. 50¢	35¢	1 nickel, 1 dime
3. 50¢	13¢	2 pennies, 1 nickel, 3 dimes
4. 20¢	14¢	1 penny, 1 nickel
5. 75¢	57¢	3 pennies, 1 nickel, 1 dime
6. 25¢	19¢	1 penny, 1 nickel
7. 50¢	27¢	3 pennies, 2 dimes
8. 75¢	59¢	1 penny, 1 nickel, 1 dime







## Carrying More Than One Ten

Ted had 28 picture cards of animals, 18 of baseball players, 29 of birds, and 19 of airplanes. How many cards did he have in all?

Is this an addition problem? Why?

Study the example. Say each missing number.

First add the ones. Think 8, 16,   ?  ,   ?  

Write   ?   in ones place. Add the 3 tens in the next step.

Then add the tens. Think **3**, 5, 6,   ?  ,   ?  

Write   ?   in tens place.

Ted had   ?   cards all together.

Solve the following problems. Each time think why you should add to get the answer.

1. There are four rooms in Alice's school. There are 27 children in one room, 19 in another, 28 in another, and 36 in another. There are how many children in all in Alice's school?
2. There was lots of snow for coasting in Bob's town last winter. It snowed on 15 days in December, on 19 days in January, on 18 days in February, and on 14 days in March. In all it snowed on how many days in the four months?

Copy these examples. Add and check.

3.	19	18	36	47	\$.07	\$.43	\$.45	\$.29
	19	24	19	8	.27	.09	.18	.28
	19	19	15	39	.37	.16	.06	.16
	<u>19</u>	<u>29</u>	<u>11</u>	<u>5</u>	<u>.17</u>	<u>.08</u>	<u>.21</u>	<u>.18</u>

$$\begin{array}{r}
 3 \\
 28 \\
 18 \\
 29 \\
 19 \\
 \hline
 94
 \end{array}$$

## Answers in the Hundreds

CARRYING MORE THAN 1 TEN

Study the example. Say each missing number.

First add the ones. Think 8, 15,   ?  ,   ?    
Write   ?   in ones place. Add the 2 tens in the next step.

Then add the tens. Think   2  , 11,   ?  ,   ?  ,   ?    
Write 30. The 3 will be in hundreds place and the 0 will be in tens place, because 30 tens =   ?   hundreds   ?   tens.

Read the answer. Check by adding up.

Copy each example. Add down. Check by adding up.  
When adding money, what do you put in the answer?

78	65	49	87	\$.56	\$.94	\$.10	\$.34
59	79	86	95	.96	.58	.34	.66
31	53	87	78	.77	.87	.55	.68
<u>48</u>	<u>87</u>	<u>78</u>	<u>65</u>	<u>.79</u>	<u>.33</u>	<u>.86</u>	<u>.35</u>

### Practice to Remember

Write the following numbers with words.

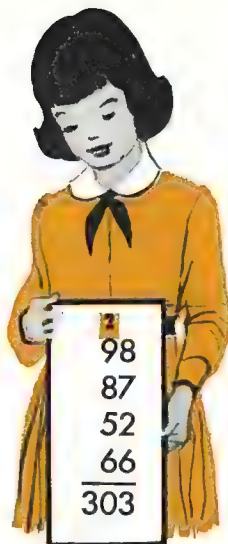
1. 465      405      650      410

Write the following numbers with figures.

2. Three hundred one      3. One hundred three  
4. Three hundred ten      5. One hundred thirty

Add the colored number to each number in its row.  
Write the answers only.

6. **9**      2, 23, 34, 45, 56, 67, 78, 89  
7. **8**      5, 6, 7, 8, 9, 15, 26, 37, 48, 59  
8. **7**      9, 8, 7, 6, 5, 35, 36, 37, 38, 39  
9. **6**      7, 8, 9, 17, 28, 39, 47, 58, 69



$$\begin{array}{r}
 98 \\
 87 \\
 52 \\
 66 \\
 \hline
 303
 \end{array}$$



## Changing Ones to Tens and Tens to Hundreds

CARRYING TWICE

Kay knew that every year except a leap year has 365 days. She wanted to find the number of days in two years. Neither year was a leap year. Could she find the answer by adding 365 and 365?

Study the example. Say each missing number.

First add the ones. Think 5,   ? Write 0 in ones place. Add the 1 ten in the next step.

Next add the tens. Think **1**, 7,   ?. This is 13 tens, or 1 hundred and 3 tens. Write   ? in tens place. Add the 1 hundred in the next step.

Then add the hundreds. Think **1**, 4,   ?. Write   ? in hundreds place.

The answer is   ? days.

Copy each example, add, and check.

- |    |   |   |   |   |   |   |
|----|---|---|---|---|---|---|
| 1. | $\begin{array}{r} 249 \\ 576 \\ \hline \end{array}$     | $\begin{array}{r} 518 \\ 298 \\ \hline \end{array}$     | $\begin{array}{r} 173 \\ 467 \\ \hline \end{array}$     | $\begin{array}{r} 285 \\ 189 \\ \hline \end{array}$     | $\begin{array}{r} 397 \\ 298 \\ \hline \end{array}$     | $\begin{array}{r} 756 \\ 157 \\ \hline \end{array}$     |
| 2. | $\begin{array}{r} 369 \\ 475 \\ \hline \end{array}$     | $\begin{array}{r} 146 \\ 568 \\ \hline \end{array}$     | $\begin{array}{r} 238 \\ 697 \\ \hline \end{array}$     | $\begin{array}{r} 159 \\ 167 \\ \hline \end{array}$     | $\begin{array}{r} 378 \\ 359 \\ \hline \end{array}$     | $\begin{array}{r} 486 \\ 399 \\ \hline \end{array}$     |
| 3. | $\begin{array}{r} \$2.25 \\ 3.85 \\ \hline \end{array}$ | $\begin{array}{r} \$6.34 \\ 2.67 \\ \hline \end{array}$ | $\begin{array}{r} \$5.73 \\ 3.49 \\ \hline \end{array}$ | $\begin{array}{r} \$2.59 \\ 2.42 \\ \hline \end{array}$ | $\begin{array}{r} \$2.48 \\ 4.83 \\ \hline \end{array}$ | $\begin{array}{r} \$4.04 \\ 2.98 \\ \hline \end{array}$ |

Study the example below. Say each missing number.

First add the ones. Think 3, 11,   ?. Write   ? in ones place. Add the 1 ten in the next step.

Next add the tens. Think **1**, 10,   ?. Write   ? in tens place. Add the 1 hundred in the next step.

Then add the hundreds. Think **1**, 2,   ?,   ?. Write   ? in hundreds place. The answer is   ?.

$$\begin{array}{r} \text{11} \\ 365 \\ + 365 \\ \hline 730 \end{array}$$

$$\begin{array}{r} \text{11} \\ 193 \\ 458 \\ 307 \\ \hline 958 \end{array}$$

Copy each example, add, and check.

4.	475	354	586	262	\$1.47	\$6.13	\$2.75
	297	172	250	309	3.63	1.97	1.05
	<u>114</u>	<u>238</u>	<u>164</u>	<u>290</u>	<u>4.42</u>	<u>1.30</u>	<u>4.22</u>

Solve these problems.

- Jane and her mother went shopping. They spent \$2.09 in one store, \$.80 in another, and \$1.84 in another. How much did they spend in all?
- Judy has been on three trips with her family in the new car. They went 154 miles on the first trip, 90 miles on the second trip, and 105 miles on the third trip. How many miles in all is that?

Copy each example, add, and check.

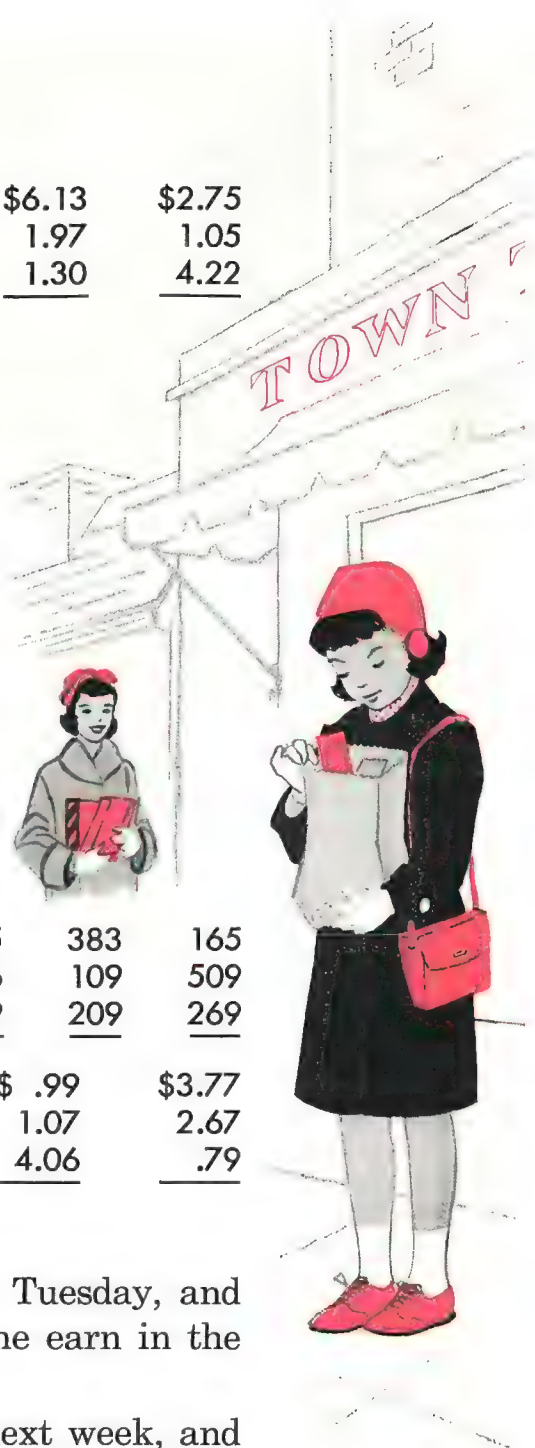
7.	158	239	477	549	226	155	383	165
	208	145	107	169	189	106	109	509
	<u>389</u>	<u>428</u>	<u>217</u>	<u>128</u>	<u>305</u>	<u>139</u>	<u>209</u>	<u>269</u>

8.	\$2.69	\$1.48	\$5.08	\$6.76	\$ .99	\$3.77
	1.09	.57	.98	1.06	1.07	2.67
	<u>1.28</u>	<u>4.06</u>	<u>1.08</u>	<u>1.28</u>	<u>4.06</u>	<u>.79</u>

Solve the following problems.

- Joe earned \$1.06 on Monday, \$.99 on Tuesday, and \$1.17 on Wednesday. How much did he earn in the three days?
- Ellen saved \$.75 one week, \$.58 the next week, and \$1.29 the next week. How much all together did Ellen save in the three weeks?







## Column Addition

The balloon man told Judy that in one week he sold 164 red balloons, 188 blue balloons, and 178 green balloons. How many did he sell that week all together?

Would you add to find the answer? Why?

Study the example. Say each missing number.

First add the ones. Think 4, 12,   .  $20 = \underline{\quad}$  tens    ones. Write    in ones place. Add the 2 tens in the next step.

Next add the tens. Think **2**, 8, 16,   . 23 tens =    hundreds    tens. Write    in tens place. Add the 2 hundreds in the next step.

Then add the hundreds. Think **2**, 3,   ,   . Write    in hundreds place.

The man sold    balloons that week.

Copy each example, add, and check.

22
164
188
178
<hr/> 530

1.	176	295	389	228	\$5.57	\$4.95	\$ .89	\$ .98
	398	499	165	389	1.68	.88	6.86	.97
	<u>198</u>	<u>199</u>	<u>247</u>	<u>195</u>	<u>.95</u>	<u>2.79</u>	<u>.85</u>	<u>1.06</u>

Solve the following problems. Each time think why you should add to get the answer.

- Joe has \$5.98 in his bank, \$2.25 in his savings card, and \$.78 in his pocket. How much money does Joe have all together in the three places?
- Ellen bought a dress for \$4.78, shoes for \$3.86, and a belt for \$.76. How much in all did she spend?

## Changing a Hundred to Tens and a Ten to Ones

### BORROWING TWICE IN SUBTRACTION

Bob and his family went on a trip. They stopped to read a road sign. The sign showed the distance to each of two cities. What is the difference in distance?



Subtract to find the difference.

Study the example. Say each missing number.

First subtract the ones. You cannot subtract 8 from 2. Change 1 of the 6 tens to 10 ones, leaving 5 tens and making 12 ones. Think  $12 - 8 = ?$ . Write  $?$  in ones place.

8	15
5	12
9	62
-	598
	364

Next subtract the tens. You cannot subtract 9 from 5. Change 1 of the 9 hundreds to 10 tens, leaving 8 hundreds and making 15 tens. Think  $15 - 9 = ?$ . Write  $?$  in tens place.

Then subtract the hundreds. Think  $8 - 5 = ?$ . Write  $?$  in hundreds place.

The difference in distance is  $?$  miles.

Check the answer by adding.

The colored numbers are *kept in mind* when you do the example. Write them only if you cannot keep them in mind.

Copy each example, subtract, and check.

- |            |            |            |            |            |            |            |            |
|------------|------------|------------|------------|------------|------------|------------|------------|
| 563        | 641        | 826        | 734        | 950        | 486        | 841        | 912        |
| <u>278</u> | <u>372</u> | <u>589</u> | <u>256</u> | <u>397</u> | <u>188</u> | <u>145</u> | <u>467</u> |
- |            |            |            |            |            |            |            |            |
|------------|------------|------------|------------|------------|------------|------------|------------|
| 723        | 610        | 941        | 852        | 897        | 733        | 835        | 964        |
| <u>596</u> | <u>412</u> | <u>153</u> | <u>386</u> | <u>299</u> | <u>149</u> | <u>498</u> | <u>697</u> |

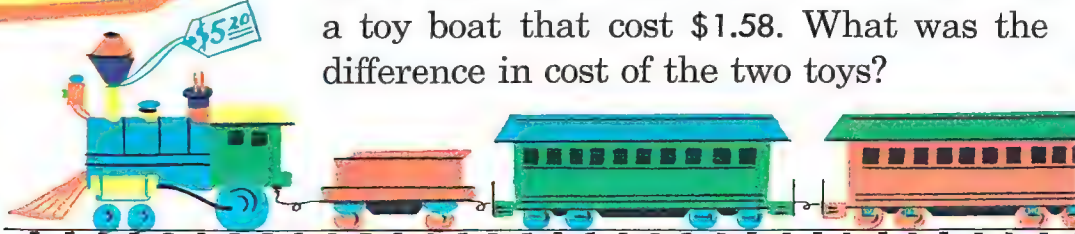
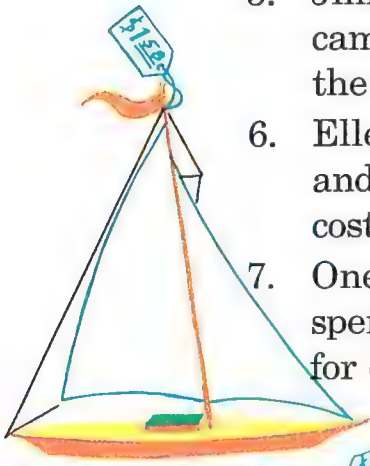
## Subtracting Dollars and Cents

Dollars and cents are subtracted like other numbers. Be sure to put a dollar sign and decimal point in each answer. Keep the decimal points in line.

- |    |   |   |   |   |   |   |
|----|---|---|---|---|---|---|
| 1. | $\begin{array}{r} \$6.20 \\ 2.75 \\ \hline \end{array}$ | $\begin{array}{r} \$9.14 \\ 7.35 \\ \hline \end{array}$ | $\begin{array}{r} \$4.10 \\ 2.94 \\ \hline \end{array}$ | $\begin{array}{r} \$6.18 \\ 5.89 \\ \hline \end{array}$ | $\begin{array}{r} \$9.60 \\ 2.71 \\ \hline \end{array}$ | $\begin{array}{r} \$7.30 \\ 1.93 \\ \hline \end{array}$ |
|----|---|---|---|---|---|---|

Solve the following problems. Each time think why you subtract to get the answer.

- Betty's home is 323 miles from San Francisco and 168 miles from Los Angeles. What is the difference in distance to the two cities from Betty's home?
- Slim's ranch is 338 miles from Denver and 530 miles from Salt Lake City. What is the difference in distance of the two cities from Slim's ranch?
- Sam's father flew 548 miles last week and 914 miles this week. What is the difference in the distance flown this week and last?
- Jim goes 330 miles to camp. Kay goes 156 miles to camp. What is the difference in distance covered by the two children in going to camp?
- Ellen looked at two sport coats. One coat cost \$7.75 and the other cost \$4.76. What was the difference in cost of the two coats?
- One week Ted spent \$7.11 for clothes while his sister spent \$3.74. What was the difference in money spent for clothes that week by the two children?
- Jack saw a toy train that cost \$5.20 and a toy boat that cost \$1.58. What was the difference in cost of the two toys?





## Subtracting Three-Place Numbers

MIDDLE ZERO IN MINUEND AFTER BORROWING 1 TEN

Dick went on a vacation trip of 814 miles with his father. Bob and his family went 346 miles on their vacation trip. Bob's trip was how many miles shorter than Dick's trip?

Would you subtract to find the answer? Why?

Study the example. Say each missing number.

First subtract the ones. You cannot subtract 6 from 4. Change the 1 ten to 10 ones, leaving 0 tens and making 14 ones. Think  $14 - 6 = ?$  Write  $?$  in ones place.

Next subtract the tens. You cannot subtract 4 from 0. Change 1 of the 8 hundreds to 10 tens, leaving 7 hundreds. Think  $10 - 4 = ?$  Write  $?$  in tens place.

Then subtract the hundreds. Think  $7 - 3 = ?$  Write  $?$  in hundreds place.

Bob's trip was  $?$  miles shorter than Dick's.

Check the answer by adding.

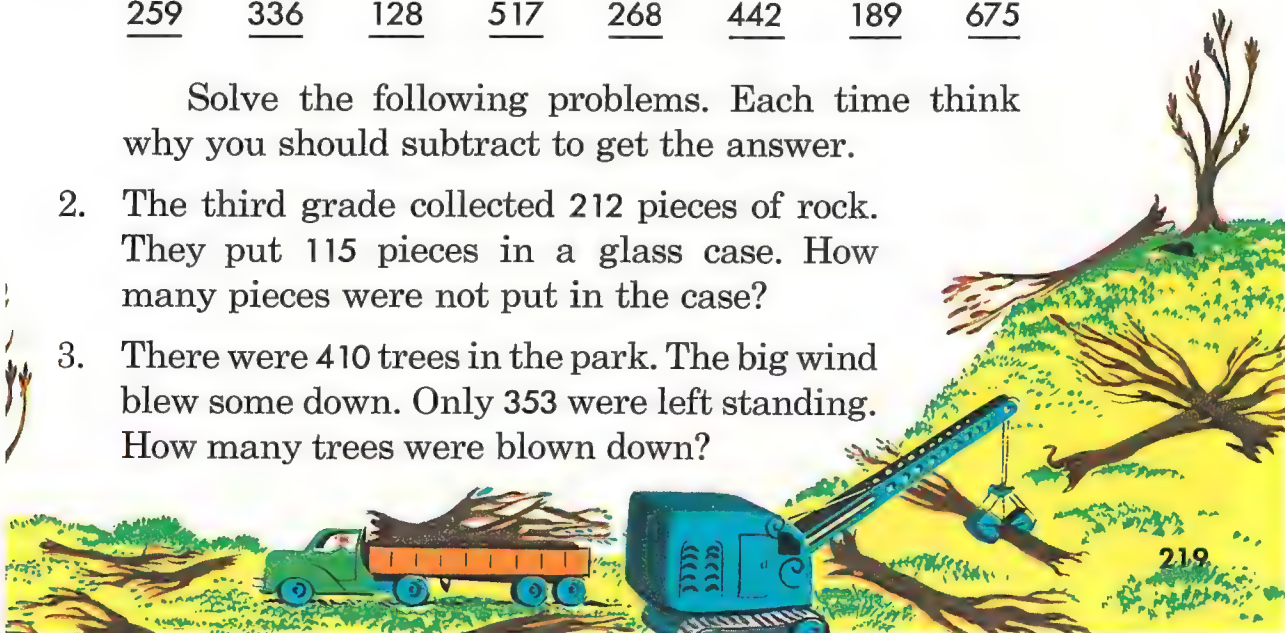
Copy each example, subtract, and check.

- |    |   |   |   |   |   |   |   |   |
|----|---|---|---|---|---|---|---|---|
| 1. | $\begin{array}{r} 717 \\ 259 \\ \hline \end{array}$ | $\begin{array}{r} 515 \\ 336 \\ \hline \end{array}$ | $\begin{array}{r} 413 \\ 128 \\ \hline \end{array}$ | $\begin{array}{r} 916 \\ 517 \\ \hline \end{array}$ | $\begin{array}{r} 612 \\ 268 \\ \hline \end{array}$ | $\begin{array}{r} 810 \\ 442 \\ \hline \end{array}$ | $\begin{array}{r} 318 \\ 189 \\ \hline \end{array}$ | $\begin{array}{r} 914 \\ 675 \\ \hline \end{array}$ |
|----|---|---|---|---|---|---|---|---|

$$\begin{array}{r} 10 \\ 8 \cancel{1} 4 \\ - 346 \\ \hline 468 \end{array}$$

Solve the following problems. Each time think why you should subtract to get the answer.

- The third grade collected 212 pieces of rock. They put 115 pieces in a glass case. How many pieces were not put in the case?
- There were 410 trees in the park. The big wind blew some down. Only 353 were left standing. How many trees were blown down?





## Subtracting Three-Place Numbers

ZERO REMAINDER IN HUNDREDS PLACE

Study the example below. Say each missing number.

First subtract the ones. You cannot subtract 9 from 3. Change 1 of the 2 tens to 10 ones, leaving 1 ten and making 13 ones. Think  $13 - 9 = \underline{\quad}$ . Write  $\underline{\quad}$  in ones place.

$$\begin{array}{r} 11 \\ 7 \cancel{1} 13 \\ 823 \\ - 759 \\ \hline 64 \end{array}$$

Next subtract the tens. You cannot subtract 5 from 1. Change 1 of the 8 hundreds to 10 tens, leaving 7 hundreds and making 11 tens. Think  $11 - 5 = \underline{\quad}$ . Write  $\underline{\quad}$  in tens place.

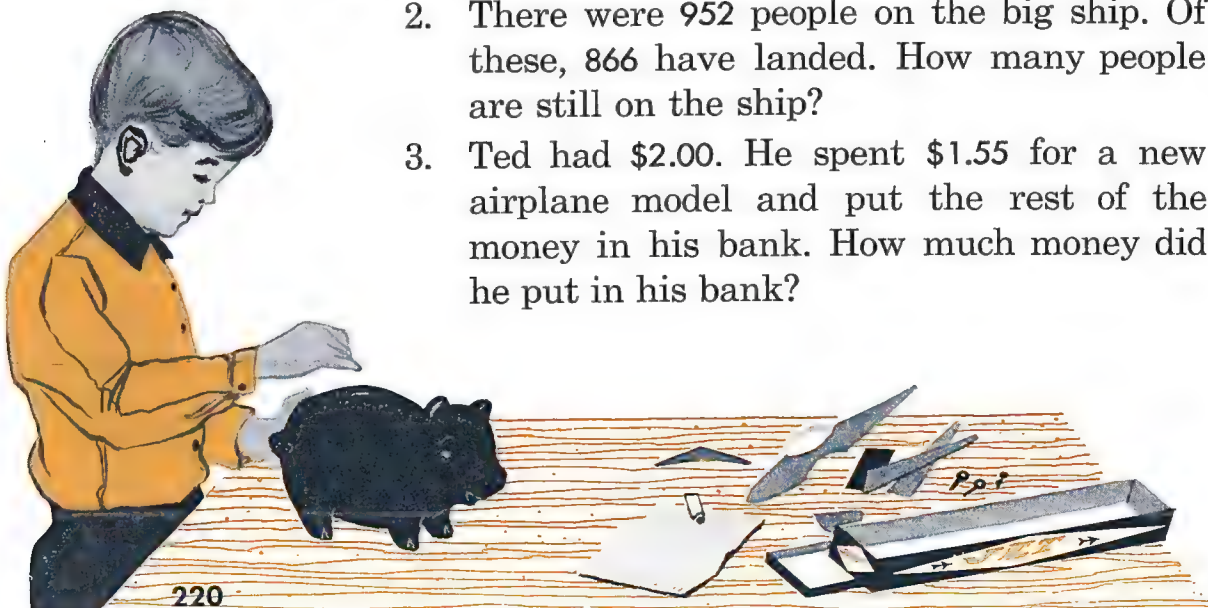
Then subtract the hundreds. Think  $7 - 7 = \underline{\quad}$ . Do not write the 0 in hundreds place. The answer, 64, does not need a zero to show that there are no hundreds. Check the answer by adding.

Copy each example, subtract, and check.

- |    |   |   |   |   |   |   |   |   |
|----|---|---|---|---|---|---|---|---|
| 1. | $\begin{array}{r} 533 \\ 464 \end{array}$ | $\begin{array}{r} 375 \\ 297 \end{array}$ | $\begin{array}{r} 718 \\ 629 \end{array}$ | $\begin{array}{r} 504 \\ 456 \end{array}$ | $\begin{array}{r} 962 \\ 885 \end{array}$ | $\begin{array}{r} 257 \\ 198 \end{array}$ | $\begin{array}{r} 846 \\ 778 \end{array}$ | $\begin{array}{r} 421 \\ 382 \end{array}$ |
|----|---|---|---|---|---|---|---|---|

Solve the following problems. Each time think why you should subtract to get the answer.

- There were 952 people on the big ship. Of these, 866 have landed. How many people are still on the ship?
- Ted had \$2.00. He spent \$1.55 for a new airplane model and put the rest of the money in his bank. How much money did he put in his bank?



## Practice to Remember

Do not copy the examples. Write each row of answers on folded paper.

Add down. Check by adding up.

$$\begin{array}{r}
 1. \quad \begin{array}{ccccccccc}
 6 & 7 & 8 & 5 & 6 & 9 & 4 & 7 & 5 & 7 \\
 7 & 7 & 9 & 5 & 6 & 9 & 9 & 8 & 9 & 6 \\
 8 & 7 & 9 & 5 & 6 & 8 & 9 & 7 & 8 & 7 \\
 \hline
 9 & 8 & 8 & 8 & 7 & 9 & 9 & 7 & 8 & 7
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 2. \quad \begin{array}{ccccccccc}
 35 & 27 & 49 & 46 & 38 & 50 & 54 & 72 \\
 26 & 63 & 37 & 32 & 53 & 13 & 83 & 39 \\
 57 & 96 & 64 & 45 & 56 & 45 & 41 & 68 \\
 \hline
 16 & 85 & 48 & 56 & 42 & 22 & 91 & 74
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 3. \quad \begin{array}{ccccccc}
 439 & 58 & 316 & \$2.08 & \$ .96 & \$5.68 & \$6.59 \\
 99 & 286 & 179 & .79 & .97 & 3.38 & .54 \\
 \hline
 185 & 577 & 26 & 4.56 & 1.09 & .48 & 1.38
 \end{array}
 \end{array}$$

Add. Check by doing the example again.

$$\begin{array}{r}
 4. \quad \begin{array}{ccccccc}
 119 & 290 & 439 & \$5.08 & \$6.17 & \$3.09 & \$3.93 \\
 702 & 314 & 197 & 2.94 & 2.87 & 1.06 & 2.82 \\
 \hline
 \end{array}
 \end{array}$$

Subtract. Check by adding.

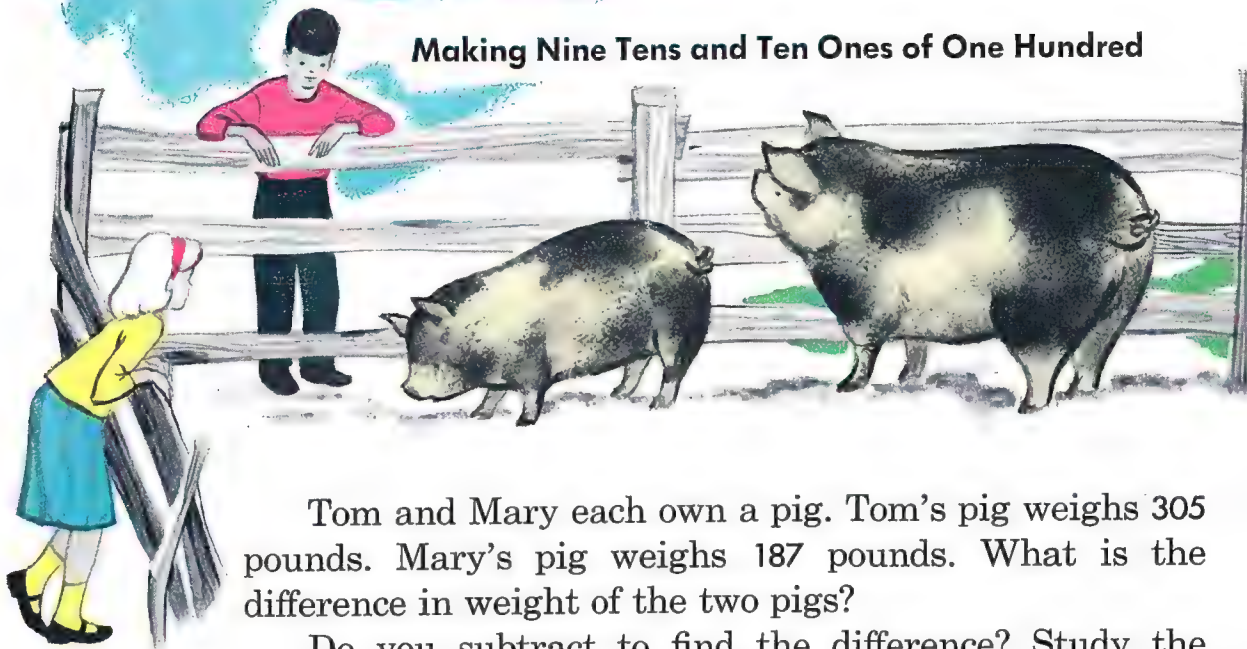
$$\begin{array}{r}
 5. \quad \begin{array}{ccccccc}
 978 & 826 & 713 & 561 & 935 & 482 & 694 \\
 749 & 358 & 404 & 529 & 627 & 317 & 248 \\
 \hline
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 6. \quad \begin{array}{ccccccc}
 629 & 618 & 837 & 945 & 529 & 668 & 837 \\
 353 & 135 & 663 & 170 & 281 & 492 & 580 \\
 \hline
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 7. \quad \begin{array}{ccccccc}
 786 & 744 & 832 & 435 & 421 & 730 & 863 \\
 587 & 376 & 269 & 146 & 287 & 134 & 685 \\
 \hline
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 8. \quad \begin{array}{ccccccc}
 \$8.15 & \$9.21 & \$7.44 & \$9.90 & \$2.31 & \$1.10 & \$5.24 \\
 7.59 & 5.16 & 6.95 & 2.83 & .04 & .27 & .29 \\
 \hline
 \end{array}
 \end{array}$$

## Making Nine Tens and Ten Ones of One Hundred



Tom and Mary each own a pig. Tom's pig weighs 305 pounds. Mary's pig weighs 187 pounds. What is the difference in weight of the two pigs?

Do you subtract to find the difference? Study the example. Say each missing number.

$$\begin{array}{r}
 \text{9} \\
 \text{2 } \text{10 } \text{15} \\
 305 \\
 - 187 \\
 \hline
 118
 \end{array}$$

First subtract the ones. You cannot subtract 7 from 5, and there are no tens to change. Change 1 of the 3 hundreds to 10 tens, leaving 2 hundreds. Then change 1 of the 10 tens to 10 ones, leaving 9 tens and making 15 ones. Think  $\text{15} - 7 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in ones place.

Next subtract the tens. Think  $\text{9} - 8 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in tens place.

Then subtract the hundreds. Think  $\text{2} - 1 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in hundreds place.

The difference in weight of the two pigs is  $\underline{\quad ? \quad}$  pounds. Check the answer by adding.

Solve this problem. Think why you should subtract.

1. A puppet show was coming to town. The children could save money if they bought tickets for it in school. The principal had 300 tickets. He has sold 173. How many more children may buy tickets in school?

In each example below you will need to change a hundred to 9 tens and 10 ones.

Copy each example, subtract, and check.

$$\begin{array}{r} 2. \quad 301 \\ \underline{125} \end{array} \quad \begin{array}{r} 604 \\ \underline{245} \end{array} \quad \begin{array}{r} 403 \\ \underline{167} \end{array} \quad \begin{array}{r} 706 \\ \underline{419} \end{array} \quad \begin{array}{r} 905 \\ \underline{578} \end{array} \quad \begin{array}{r} 902 \\ \underline{184} \end{array} \quad \begin{array}{r} 608 \\ \underline{309} \end{array} \quad \begin{array}{r} 903 \\ \underline{796} \end{array}$$

$$\begin{array}{r} 3. \quad 705 \\ \underline{346} \end{array} \quad \begin{array}{r} 801 \\ \underline{537} \end{array} \quad \begin{array}{r} 701 \\ \underline{696} \end{array} \quad \begin{array}{r} 901 \\ \underline{807} \end{array} \quad \begin{array}{r} 700 \\ \underline{261} \end{array} \quad \begin{array}{r} 800 \\ \underline{628} \end{array} \quad \begin{array}{r} 204 \\ \underline{137} \end{array} \quad \begin{array}{r} 302 \\ \underline{75} \end{array}$$

$$\begin{array}{r} 4. \quad 805 \\ \underline{749} \end{array} \quad \begin{array}{r} 904 \\ \underline{56} \end{array} \quad \begin{array}{r} 407 \\ \underline{239} \end{array} \quad \begin{array}{r} 600 \\ \underline{68} \end{array} \quad \begin{array}{r} 506 \\ \underline{309} \end{array} \quad \begin{array}{r} 302 \\ \underline{153} \end{array} \quad \begin{array}{r} 500 \\ \underline{299} \end{array} \quad \begin{array}{r} 803 \\ \underline{405} \end{array}$$

$$\begin{array}{r} 5. \quad \$6.03 \\ \underline{5.74} \end{array} \quad \begin{array}{r} \$4.02 \\ \underline{3.96} \end{array} \quad \begin{array}{r} \$5.00 \\ \underline{2.15} \end{array} \quad \begin{array}{r} \$8.00 \\ \underline{2.89} \end{array} \quad \begin{array}{r} \$4.06 \\ \underline{.57} \end{array} \quad \begin{array}{r} \$9.05 \\ \underline{8.38} \end{array}$$

### Without Pencil or Paper

- If you paid \$5.00 for something that cost \$3.90, would your change be about \$2, about \$1, or about 10¢?
- Is 130 closer to 100 or to 200?
- Is the difference between 100 and 200 the same as the difference between 150 and 250?
- Which number is nearer 160: 154 or 156?
- Give the answer to the following in ones:  
4 tens + 3 tens + 2 tens =   ?   ones
- Give the answer to the following in tens:  
4 hundreds + 3 hundreds + 2 hundreds =   ?   tens
- Say the missing number in the following:  
1 hundred = 9 tens +   ?   ones
- How many tens are there in the answer to the following?  $19 + 19 + 19$





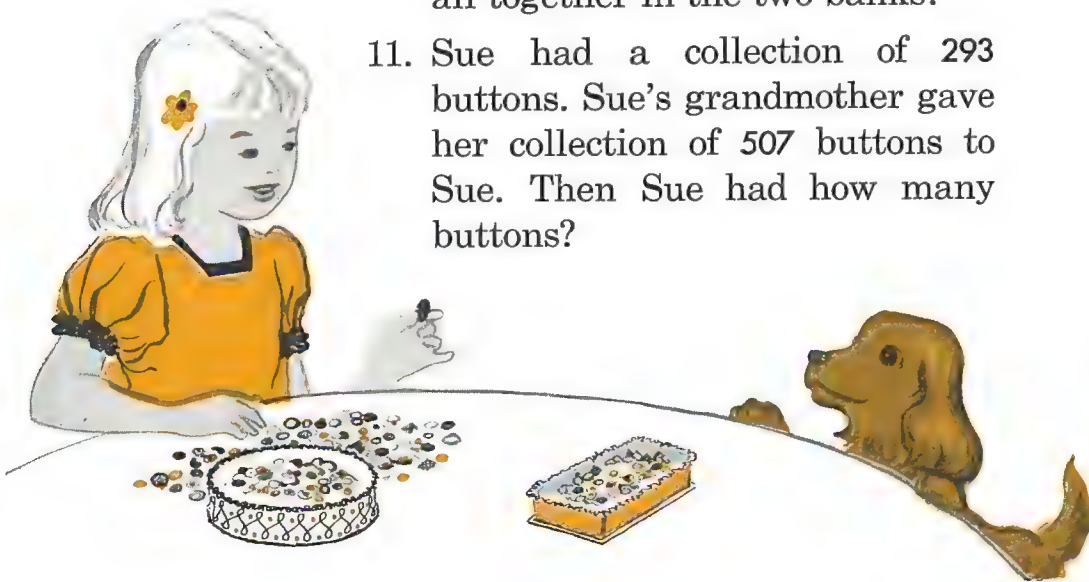
## Addition and Subtraction Problems

Can you tell addition problems from subtraction problems? Look for a hint in the questions. Some have a hint. Some do not. See if putting numbers together or taking them apart is the way to answer the question. Check your answers. Be sure they make sense.

1. Jim went with his father in their old car to buy a newer car. The car they both liked cost \$950. The man said he would give them \$275 in trade for the old car. How much money would Jim's father have to give for the new car if he traded in his old car?
2. Mary collected 234 eggs on Monday and 276 eggs on Tuesday. How many eggs all together did she collect in the two days?
3. Fred's uncle lives on a farm 156 miles away. To get there Fred goes 98 miles by train and the rest of the way by bus. How far does he go by bus?
4. Sam earns money shining shoes on Saturdays. One Saturday he earned \$2.30. The next Saturday he earned \$1.90. How much less did he earn on the second Saturday than on the first Saturday?
5. Bill helped with the Cub Scout paper drive. The first day the Scouts collected 195 pounds of paper, the next day, 248 pounds, and the third and last day, 379 pounds. How many pounds of paper did the Scouts collect during the three-day drive?

6. Sam wanted to weigh his pig. The pig would not stand still, so Sam put the pig in a big box. Then he weighed the pig and the box together. They weighed 210 pounds. The box alone weighed 16 pounds. How much did the pig weigh?
7. Kay looked at a sweater in the store. The sweater cost \$4.55. Kay counted her money. She had just \$3.48. How much more money did Kay need to buy the sweater?
8. Alice sold Girl Scout cookies. The first day she made \$4.85. The next day she made \$3.45. How much did she make in the two days for the Girl Scouts?
9. Ruth helped her teacher with the milk money every Thursday. The first Thursday she collected \$6.25. The next Thursday some of the pupils were not in school so she collected only \$4.50. How much more money did she collect on the first Thursday than on the second?
10. Joe had two toy banks. In one he had \$5.98. In the other he had \$3.79. How much money did Joe have all together in the two banks?

11. Sue had a collection of 293 buttons. Sue's grandmother gave her collection of 507 buttons to Sue. Then Sue had how many buttons?



## Finding What You Need to Study Again

Page numbers at the side tell where to find help.  
Add down. Check by doing the example twice.

Page

186

189

190

192

199

205

212

213

214

226

1.	$\begin{array}{r} 12 \\ 19 \\ \hline \end{array}$	$\begin{array}{r} 23 \\ 19 \\ \hline \end{array}$	$\begin{array}{r} 35 \\ 28 \\ \hline \end{array}$	$\begin{array}{r} 46 \\ 36 \\ \hline \end{array}$	$\begin{array}{r} 57 \\ 19 \\ \hline \end{array}$
2.	$\begin{array}{r} 68 \\ 17 \\ 12 \\ \hline \end{array}$	$\begin{array}{r} 36 \\ 18 \\ 14 \\ \hline \end{array}$	$\begin{array}{r} 19 \\ 28 \\ 32 \\ \hline \end{array}$	$\begin{array}{r} 26 \\ 29 \\ 31 \\ \hline \end{array}$	$\begin{array}{r} 48 \\ 24 \\ 13 \\ \hline \end{array}$
3.	$\begin{array}{r} 93 \\ 24 \\ 45 \\ \hline \end{array}$	$\begin{array}{r} 82 \\ 36 \\ 55 \\ \hline \end{array}$	$\begin{array}{r} 54 \\ 45 \\ 76 \\ \hline \end{array}$	$\begin{array}{r} 73 \\ 25 \\ 56 \\ \hline \end{array}$	$\begin{array}{r} 86 \\ 53 \\ 27 \\ \hline \end{array}$
4.	$\begin{array}{r} 65 \\ 79 \\ 60 \\ 40 \\ \hline \end{array}$	$\begin{array}{r} 94 \\ 68 \\ 41 \\ 23 \\ \hline \end{array}$	$\begin{array}{r} 73 \\ 87 \\ 23 \\ 30 \\ \hline \end{array}$	$\begin{array}{r} 85 \\ 90 \\ 35 \\ 48 \\ \hline \end{array}$	$\begin{array}{r} 56 \\ 57 \\ 91 \\ 90 \\ \hline \end{array}$
5.	$\begin{array}{r} 319 \\ 674 \\ \hline \end{array}$	$\begin{array}{r} 622 \\ 148 \\ \hline \end{array}$	$\begin{array}{r} 237 \\ 418 \\ \hline \end{array}$	$\begin{array}{r} 368 \\ 529 \\ \hline \end{array}$	$\begin{array}{r} 677 \\ 314 \\ \hline \end{array}$
6.	$\begin{array}{r} 152 \\ 172 \\ \hline \end{array}$	$\begin{array}{r} 276 \\ 332 \\ \hline \end{array}$	$\begin{array}{r} 352 \\ 465 \\ \hline \end{array}$	$\begin{array}{r} 473 \\ 466 \\ \hline \end{array}$	$\begin{array}{r} 542 \\ 193 \\ \hline \end{array}$
7.	$\begin{array}{r} 19 \\ 19 \\ 19 \\ 19 \\ \hline \end{array}$	$\begin{array}{r} 28 \\ 18 \\ 28 \\ 18 \\ \hline \end{array}$	$\begin{array}{r} 37 \\ 17 \\ 17 \\ 17 \\ \hline \end{array}$	$\begin{array}{r} 46 \\ 16 \\ 16 \\ 16 \\ \hline \end{array}$	$\begin{array}{r} 15 \\ 35 \\ 15 \\ 25 \\ \hline \end{array}$
8.	$\begin{array}{r} 79 \\ 61 \\ 77 \\ 98 \\ \hline \end{array}$	$\begin{array}{r} 83 \\ 38 \\ 78 \\ 14 \\ \hline \end{array}$	$\begin{array}{r} 64 \\ 76 \\ 89 \\ 98 \\ \hline \end{array}$	$\begin{array}{r} 59 \\ 60 \\ 87 \\ 69 \\ \hline \end{array}$	$\begin{array}{r} 89 \\ 45 \\ 59 \\ 34 \\ \hline \end{array}$
9.	$\begin{array}{r} 289 \\ 112 \\ \hline \end{array}$	$\begin{array}{r} 438 \\ 275 \\ \hline \end{array}$	$\begin{array}{r} 567 \\ 235 \\ \hline \end{array}$	$\begin{array}{r} 179 \\ 246 \\ \hline \end{array}$	$\begin{array}{r} 395 \\ 369 \\ \hline \end{array}$



Subtract. Check by doing the example twice.

10.	$\begin{array}{r} 86 \\ 49 \\ \hline \end{array}$	$\begin{array}{r} 74 \\ 28 \\ \hline \end{array}$	$\begin{array}{r} 93 \\ 36 \\ \hline \end{array}$	$\begin{array}{r} 65 \\ 27 \\ \hline \end{array}$	$\begin{array}{r} 57 \\ 18 \\ \hline \end{array}$
11.	$\begin{array}{r} 50 \\ 27 \\ \hline \end{array}$	$\begin{array}{r} 60 \\ 14 \\ \hline \end{array}$	$\begin{array}{r} 70 \\ 38 \\ \hline \end{array}$	$\begin{array}{r} 80 \\ 53 \\ \hline \end{array}$	$\begin{array}{r} 90 \\ 45 \\ \hline \end{array}$
12.	$\begin{array}{r} 75 \\ 68 \\ \hline \end{array}$	$\begin{array}{r} 57 \\ 49 \\ \hline \end{array}$	$\begin{array}{r} 92 \\ 88 \\ \hline \end{array}$	$\begin{array}{r} 63 \\ 57 \\ \hline \end{array}$	$\begin{array}{r} 31 \\ 27 \\ \hline \end{array}$
13.	$\begin{array}{r} 463 \\ 335 \\ \hline \end{array}$	$\begin{array}{r} 994 \\ 269 \\ \hline \end{array}$	$\begin{array}{r} 672 \\ 146 \\ \hline \end{array}$	$\begin{array}{r} 793 \\ 324 \\ \hline \end{array}$	$\begin{array}{r} 985 \\ 516 \\ \hline \end{array}$
14.	$\begin{array}{r} 244 \\ 17 \\ \hline \end{array}$	$\begin{array}{r} 476 \\ 58 \\ \hline \end{array}$	$\begin{array}{r} 694 \\ 15 \\ \hline \end{array}$	$\begin{array}{r} 142 \\ 27 \\ \hline \end{array}$	$\begin{array}{r} 331 \\ 14 \\ \hline \end{array}$
15.	$\begin{array}{r} 719 \\ 266 \\ \hline \end{array}$	$\begin{array}{r} 848 \\ 567 \\ \hline \end{array}$	$\begin{array}{r} 629 \\ 351 \\ \hline \end{array}$	$\begin{array}{r} 337 \\ 186 \\ \hline \end{array}$	$\begin{array}{r} 955 \\ 290 \\ \hline \end{array}$
16.	$\begin{array}{r} 337 \\ 97 \\ \hline \end{array}$	$\begin{array}{r} 518 \\ 83 \\ \hline \end{array}$	$\begin{array}{r} 723 \\ 43 \\ \hline \end{array}$	$\begin{array}{r} 964 \\ 90 \\ \hline \end{array}$	$\begin{array}{r} 689 \\ 94 \\ \hline \end{array}$
17.	$\begin{array}{r} 722 \\ 329 \\ \hline \end{array}$	$\begin{array}{r} 981 \\ 693 \\ \hline \end{array}$	$\begin{array}{r} 662 \\ 183 \\ \hline \end{array}$	$\begin{array}{r} 841 \\ 459 \\ \hline \end{array}$	$\begin{array}{r} 551 \\ 295 \\ \hline \end{array}$
18.	$\begin{array}{r} 913 \\ 528 \\ \hline \end{array}$	$\begin{array}{r} 912 \\ 416 \\ \hline \end{array}$	$\begin{array}{r} 811 \\ 264 \\ \hline \end{array}$	$\begin{array}{r} 714 \\ 596 \\ \hline \end{array}$	$\begin{array}{r} 615 \\ 279 \\ \hline \end{array}$
19.	$\begin{array}{r} 275 \\ 176 \\ \hline \end{array}$	$\begin{array}{r} 544 \\ 478 \\ \hline \end{array}$	$\begin{array}{r} 726 \\ 669 \\ \hline \end{array}$	$\begin{array}{r} 932 \\ 857 \\ \hline \end{array}$	$\begin{array}{r} 461 \\ 372 \\ \hline \end{array}$
20.	$\begin{array}{r} 402 \\ 188 \\ \hline \end{array}$	$\begin{array}{r} 601 \\ 495 \\ \hline \end{array}$	$\begin{array}{r} 307 \\ 208 \\ \hline \end{array}$	$\begin{array}{r} 503 \\ 176 \\ \hline \end{array}$	$\begin{array}{r} 900 \\ 734 \\ \hline \end{array}$

Page  
194, 195

197

198

200

202

206

208

217

219

220

221







## Finding Out What You Know

### A. Word Meanings

Copy the sentence numbers. After each number write the word left out of that sentence. Choose from the row of words under the sentence.

1. Dick looked at the   ? hanging outside to see how hot the day was.

*temperature, thermometer, weather, degree*

2. When Ted subtracted in the example at the left, he did not need to write 0 in   ? place.

*ones, tens, hundreds*

3. A thermometer measures temperature in   ?.

*cents, inches, degrees, pounds*

4. Dick subtracted to find the   ? in temperature on Tuesday and on Wednesday.

*weight, difference, length, time*

### B. Arithmetic Understandings

Copy the sentence numbers. Write beside each the number missing in that sentence.

1. 3 dimes and 2 pennies are worth the same as 2 dimes and   ? pennies.

2. When you subtract 92 from 134, you think of 134 as   ? tens and 4 ones.

3. When you add 32 and 29, you write   ? in ones place and 6 in tens place.

4. When you subtract 29 from 32, you write 3 in ones place and nothing at all in   ? place.

$$\begin{array}{r} 379 \\ -349 \\ \hline 30 \end{array}$$

5. In subtracting 328 from 609, you change 1 of the   ? hundreds to 10 tens.
6. In subtracting 456 from 790, you change 1 of the 9 tens to   ? ones.

### C. Number Facts and Skills

Copy each example, add, and check.

- |    |   |   |   |  |  |
|----|---|---|---|--|--|
| 1. | $\begin{array}{r} 38 \\ 24 \\ \hline \end{array}$       | $\begin{array}{r} 183 \\ 542 \\ \hline \end{array}$     | $\begin{array}{r} 108 \\ 324 \\ \hline \end{array}$     | $\begin{array}{r} 198 \\ 324 \\ \hline \end{array}$        | $\begin{array}{r} \$1.98 \\ .24 \\ \hline \end{array}$         |
| 2. | $\begin{array}{r} 38 \\ 24 \\ 12 \\ \hline \end{array}$ | $\begin{array}{r} 38 \\ 24 \\ 19 \\ \hline \end{array}$ | $\begin{array}{r} 38 \\ 24 \\ 69 \\ \hline \end{array}$ | $\begin{array}{r} 138 \\ 324 \\ 269 \\ \hline \end{array}$ | $\begin{array}{r} \$1.83 \\ .42 \\ 2.96 \\ \hline \end{array}$ |

Copy each example, subtract, and check.

- |    |   |   |   |   |  |
|----|---|---|---|---|--|
| 3. | $\begin{array}{r} 52 \\ 24 \\ \hline \end{array}$   | $\begin{array}{r} 142 \\ 54 \\ \hline \end{array}$  | $\begin{array}{r} 536 \\ 134 \\ \hline \end{array}$ | $\begin{array}{r} 546 \\ 157 \\ \hline \end{array}$ | $\begin{array}{r} \$5.46 \\ .57 \\ \hline \end{array}$ |
| 4. | $\begin{array}{r} 546 \\ 457 \\ \hline \end{array}$ | $\begin{array}{r} 546 \\ 137 \\ \hline \end{array}$ | $\begin{array}{r} 526 \\ 136 \\ \hline \end{array}$ | $\begin{array}{r} 506 \\ 137 \\ \hline \end{array}$ | $\begin{array}{r} \$5.00 \\ .57 \\ \hline \end{array}$ |

### D. Problem Solving

Solve each problem. Check your answers.

1. Kay paid \$4.65 for a dress and \$3.98 for shoes. How much in all did she spend for these things?
2. Bob's family drove 276 miles on Monday and 327 miles on Tuesday. How far did they go in the two days?
3. Joan's family has a television set that cost 250 dollars. Betty's family has one that cost 198 dollars. What is the difference in cost of the two television sets?
4. Judy bought 3 oranges at 5¢ apiece. How much all together did Judy pay for the oranges?





# Multiplying and Dividing



**Equal Groups**



Dick had hurt his foot. He watched some of the children in his class learning a folk dance.

Some of the children had made 2 groups. They had joined hands ready to start the folk dance.

Look at the picture above.

1. How many groups are there?
2. How many children are in each group?
3. Are both groups the same in number? Groups the same in number are called *equal* groups.
4. How many children in all are in the 2 equal groups?

$$4 + 4 = \underline{\quad ? \quad}$$

$$2 \text{ fours} = \underline{\quad ? \quad}$$

Now look at the picture on page 230.

5. How many equal groups are there?
6. How many children are in each group?
7. How many in all are in the 4 equal groups?

$$2 + 2 + 2 + 2 = \underline{\quad ? \quad}$$

$$4 \text{ twos} = \underline{\quad ? \quad}$$

8. Count by twos. Start this way: 1 two is 2, 2 twos are 4, 3 twos are 6. See if you can keep on to 18.





## Multiplying Equal Groups Instead of Adding Them

“How many children in all went by me?” thought Dick. “They went by in twos, and there were 8 twos.”

If Dick counted by twos, he would find that 8 twos are \_\_\_\_\_. To make sure, count the children in the picture by twos. If Dick added to find the answer, he would use the numbers in the box at the left.

2
2
2
2
2
2
2
2
2
16

How many 2's are there? What is the answer? The example shows, by adding, that 8 twos are \_\_\_\_\_. Another way of writing 8 twos are 16 is  $8 \times 2 = 16$ .

$8 \times 2 = 16$  is a *multiplication* fact. You read it “8 times 2 is 16” or “8 twos are 16.” When you say “8 times 2 is 16,” you are *multiplying*.

The sign  $\times$  means *multiply*. You read  $\times$ , “*times*.”

You can multiply when you put equal groups together. Multiplication is often shorter than addition, but you can multiply only when the groups that are put together are *equal*.

Copy these examples. Use the picture of the children to help you find the answers.



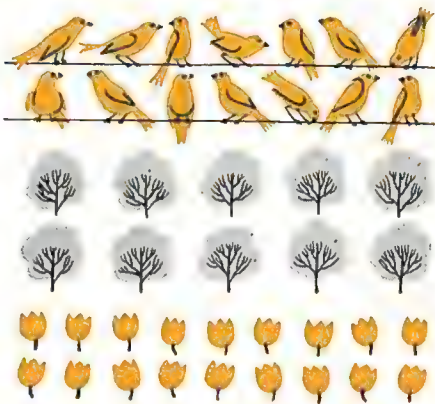
1.  $1 \times 2 = \underline{\quad}$      $2 \times 2 = \underline{\quad}$      $3 \times 2 = \underline{\quad}$      $4 \times 2 = \underline{\quad}$
2.  $5 \times 2 = \underline{\quad}$      $6 \times 2 = \underline{\quad}$      $7 \times 2 = \underline{\quad}$      $8 \times 2 = \underline{\quad}$
3. Kay's mother made some mints. She put them in a box in 9 rows with two mints in each row. How many mints were in the box?

How many groups of 2 were there?  $9 \times 2 = \underline{\quad}$   
There were  $\underline{\quad}$  mints in the box.

Understanding Multiplication

The third grade children made spring decorations out of paper for the room. Each child put his decorations on his desk in two rows with the same number in each row.

- 1. Bob had 7 birds in each row. How many birds in all did Bob make? Are 2 sevens the same as  $7 + 7$ ?  $2 \times 7 = \underline{\hspace{1cm}}$
- 2. Sue had 5 trees in each row. How many trees in all did Sue have? Are 2 fives the same as  $5 + 5$ ?  $2 \times 5 = \underline{\hspace{1cm}}$
- 3. Ann had 9 tulips in each row. How many tulips in all did she have?  $9 + 9 = \underline{\hspace{1cm}}$   $2 \times 9 = \underline{\hspace{1cm}}$



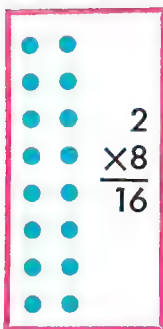
Write the numbers of the pictures below in a column. Beside each number write the addition fact and the multiplication fact that the picture shows.



10. Say the answers to these additions.

1	2	3	4	5	6	7	8	9
<u>+1</u>	<u>+2</u>	<u>+3</u>	<u>+4</u>	<u>+5</u>	<u>+6</u>	<u>+7</u>	<u>+8</u>	<u>+9</u>

11. Say a multiplication fact for each addition example in the row above. The first one will be  $2 \times 1 = 2$ .



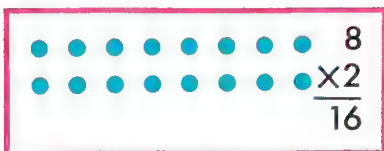
## Learning Multiplication Facts

FACTS OF 2. VERTICAL FORM

You can write the multiplication fact about 8 twos in another way, as shown in the box.

The two pictures at the left may help you to understand two multiplication facts.

$$\begin{array}{r} 2 \\ \times 8 \\ \hline 16 \end{array}$$



The first picture shows 8 rows of dots with 2 in each row. 8 twos are 16.

The second picture shows 2 rows of dots with 8 in each row. 2 eights are 16.

- See if you can make a picture with dots for each of the following facts. Beside each picture copy the fact that goes with it.

1	2	3	4	5	6	7	8	9
$\times 2$	$\times 2$	$\times 2$	$\times 2$	$\times 2$	$\times 2$	$\times 2$	$\times 2$	$\times 2$
$\hline 2$	$\hline 4$	$\hline 6$	$\hline 8$	$\hline 10$	$\hline 12$	$\hline 14$	$\hline 16$	$\hline 18$

2	2	2	2	2	2	2	2	2
$\times 1$	$\times 2$	$\times 3$	$\times 4$	$\times 5$	$\times 6$	$\times 7$	$\times 8$	$\times 9$
$\hline 2$	$\hline 4$	$\hline 6$	$\hline 8$	$\hline 10$	$\hline 12$	$\hline 14$	$\hline 16$	$\hline 18$

- Cover the answers in the two rows of facts above with a piece of paper. See if you can remember each answer and write it on the paper.

Copy these examples and write the answers.

- |            |            |            |            |            |            |            |            |            |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| 3          | 2          | 7          | 2          | 8          | 2          | 6          | 2          | 2          |
| $\times 2$ | $\times 3$ | $\times 2$ | $\times 7$ | $\times 2$ | $\times 8$ | $\times 2$ | $\times 6$ | $\times 2$ |
| $\hline$   | $\hline$   | $\hline$   | $\hline$   | $\hline$   | $\hline$   | $\hline$   | $\hline$   | $\hline$   |

- |            |            |            |            |            |            |            |            |            |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| 2          | 1          | 2          | 2          | 5          | 2          | 9          | 2          | 4          |
| $\times 2$ | $\times 2$ | $\times 1$ | $\times 5$ | $\times 2$ | $\times 9$ | $\times 2$ | $\times 4$ | $\times 2$ |
| $\hline$   | $\hline$   | $\hline$   | $\hline$   | $\hline$   | $\hline$   | $\hline$   | $\hline$   | $\hline$   |

- If you are not sure of a multiplication fact, use addition to help you, as shown in the box.  
The addition will show that 3 twos =   ?  .

	Add
2	2
2	2
$\times 3$	$\hline 2$

## Multiplying in "Put Together" Problems

Study the questions and the answers given after this problem:

Betty has 3 post cards to mail. She needs a stamp for each card. Each stamp costs 2 cents. How much money will she need for three stamps?



Are groups to be "put together"?..... Yes  
 Are they equal groups?..... Yes  
 How many cents in each group?..... 2  
 How many groups?..... 3  
 How much money does Betty need?...  $3 \times 2¢ = 6¢$   
 Could the problem be solved by addition?..... Yes

	2¢
2¢	2¢
$\times 3$	2¢
6¢	6¢

Sometimes it takes much longer to add than to multiply. Sometimes it does not.

Try doing each of the next two problems both ways.

1. Ted bought 5 stamps. Each stamp costs 2 cents. How much in all did the 5 stamps cost?
2. Sue bought 2 stamps. Each stamp costs 5 cents. How much in all did the 2 stamps cost?
3. Which way was longer in problem 1? Was either way longer in problem 2?

Solve each of these problems. First ask yourself questions like those following Betty's problem.

4. Bob bought 2 air-mail stamps. Each stamp costs 6 cents. How much did Bob pay for his stamps?
5. Ann made and packed sandwiches for a picnic. She made 8 packages and put 2 sandwiches in each. How many sandwiches did Ann make?





## Doll Parade

READINESS FOR MULTIPLICATION AND DIVISION

If pairs you choose, you see 9 twos.  
But, choosing lines, you see 2 nines.


1. The dolls in this parade are shown in pairs. How many pairs of dolls are there? How many dolls are in each pair? Count the dolls by twos and tell how many dolls are shown. 9 twos =   ?
2. How many lines of dolls are there? How many dolls are in each line? 9 dolls + 9 dolls are   ?   dolls.  
2 nines =   ?   18 =   ?   nines
3. Cover 1 pair of dolls. How many pairs are left?  
8 twos =   ?   2 eights =   ?   16 =   ?   twos  
16 =   ?   eights
4. Cover 2 pairs of dolls. Count the pairs that are left.  
7 twos =   ?   2 sevens =   ?   14 =   ?   twos  
14 =   ?   sevens


Cover enough pairs of dolls to help you tell the answer to each example in the rows below.

5. 6 twos = 2 sixes = 12 =   ?   twos or   ?   sixes
6. 5 twos = 2 fives = 10 =   ?   twos or   ?   fives
7. 4 twos = 2 fours = 8 =   ?   twos or   ?   fours
8. 3 twos = 2 threes = 6 =   ?   twos or   ?   threes
9. 2 twos = 4 =   ?   twos
10. 1 two = 2 ones = 2 =   ?   two or   ?   ones

## Multiplication Facts That Go Together

Copy the example that goes with each picture in row 1 and write the answer.

1.   
 $4 \times 2 = \underline{\quad ? \quad}$

  
 $2 \times 4 = \underline{\quad ? \quad}$

2. Tell how this picture of a dozen eggs shows that six 2's are 12 and that two 6's are 12.

$6 \times 2 = \underline{\quad ? \quad}$

$2 \times 6 = \underline{\quad ? \quad}$



Most multiplication facts go in pairs. If you know one of the pair, you know the other also.

$4 \times 2 = 8$ , so  $2 \times 4 = \underline{\quad ? \quad}$

$6 \times 2 = 12$ , so  $2 \times 6 = \underline{\quad ? \quad}$

3. Which picture below shows each of these pairs of multiplications?

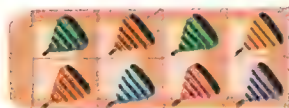
$2 \times 7, 7 \times 2$

$2 \times 3, 3 \times 2$

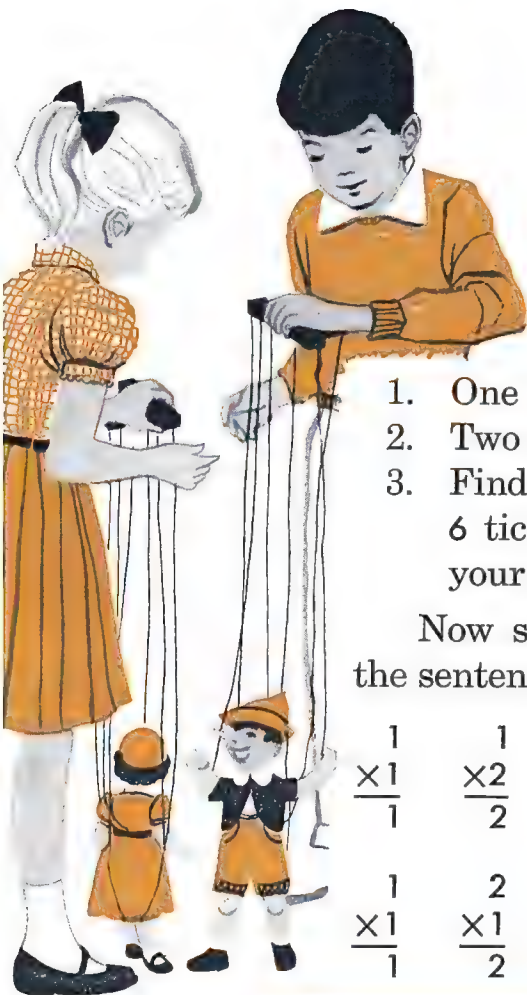
$2 \times 8, 8 \times 2$



4. What two facts does each of these pictures show?



5. Draw circles to show that 9 twos are 18. What other fact do your circles show?



## The Penny Show

MULTIPLICATION FACTS OF 1

Dick and Ruth are putting on a puppet show. Tickets cost 1¢ each. Read each sentence and say the missing word. Use addition, as shown in the second example, to help you.

1. One ticket costs  $1 \times 1¢$ , or  $\underline{\quad}¢$ .
2. Two tickets cost  $2 \times 1¢$ , or  $\underline{\quad}¢$ .  $1¢ + 1¢ = \underline{\quad}¢$
3. Find the cost of 3 tickets; 4 tickets; 5 tickets; 6 tickets; 7 tickets; 8 tickets; 9 tickets. Check your answers by adding.

Now study the two rows of facts about 1. Does the sentence that follows the two rows make sense?

$\begin{array}{r} 1 \\ \times 1 \\ \hline 1 \end{array}$	$\begin{array}{r} 1 \\ \times 2 \\ \hline 2 \end{array}$	$\begin{array}{r} 1 \\ \times 3 \\ \hline 3 \end{array}$	$\begin{array}{r} 1 \\ \times 4 \\ \hline 4 \end{array}$	$\begin{array}{r} 1 \\ \times 5 \\ \hline 5 \end{array}$	$\begin{array}{r} 1 \\ \times 6 \\ \hline 6 \end{array}$	$\begin{array}{r} 1 \\ \times 7 \\ \hline 7 \end{array}$	$\begin{array}{r} 1 \\ \times 8 \\ \hline 8 \end{array}$	$\begin{array}{r} 1 \\ \times 9 \\ \hline 9 \end{array}$
$\begin{array}{r} 1 \\ \times 1 \\ \hline 1 \end{array}$	$\begin{array}{r} 2 \\ \times 1 \\ \hline 2 \end{array}$	$\begin{array}{r} 3 \\ \times 1 \\ \hline 3 \end{array}$	$\begin{array}{r} 4 \\ \times 1 \\ \hline 4 \end{array}$	$\begin{array}{r} 5 \\ \times 1 \\ \hline 5 \end{array}$	$\begin{array}{r} 6 \\ \times 1 \\ \hline 6 \end{array}$	$\begin{array}{r} 7 \\ \times 1 \\ \hline 7 \end{array}$	$\begin{array}{r} 8 \\ \times 1 \\ \hline 8 \end{array}$	$\begin{array}{r} 9 \\ \times 1 \\ \hline 9 \end{array}$

Any number times 1, or 1 times any number, is that number.

Copy each example and multiply.

- |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|
| $\begin{array}{r} 1 \\ \underline{\quad} \end{array}$ | $\begin{array}{r} 3 \\ \underline{\quad} \end{array}$ | $\begin{array}{r} 5 \\ \underline{\quad} \end{array}$ | $\begin{array}{r} 2 \\ \underline{\quad} \end{array}$ | $\begin{array}{r} 4 \\ \underline{\quad} \end{array}$ | $\begin{array}{r} 7 \\ \underline{\quad} \end{array}$ | $\begin{array}{r} 9 \\ \underline{\quad} \end{array}$ | $\begin{array}{r} 1 \\ \underline{\quad} \end{array}$ |
|---|---|---|---|---|---|---|---|
- |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|
| $\begin{array}{r} 1 \\ \underline{\quad} \end{array}$ | $\begin{array}{r} 2 \\ \underline{\quad} \end{array}$ | $\begin{array}{r} 6 \\ \underline{\quad} \end{array}$ | $\begin{array}{r} 1 \\ \underline{\quad} \end{array}$ | $\begin{array}{r} 5 \\ \underline{\quad} \end{array}$ | $\begin{array}{r} 6 \\ \underline{\quad} \end{array}$ | $\begin{array}{r} 8 \\ \underline{\quad} \end{array}$ | $\begin{array}{r} 3 \\ \underline{\quad} \end{array}$ |
|---|---|---|---|---|---|---|---|
- |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|
| $\begin{array}{r} 1 \\ \underline{\quad} \end{array}$ | $\begin{array}{r} 7 \\ \underline{\quad} \end{array}$ | $\begin{array}{r} 9 \\ \underline{\quad} \end{array}$ | $\begin{array}{r} 1 \\ \underline{\quad} \end{array}$ | $\begin{array}{r} 1 \\ \underline{\quad} \end{array}$ | $\begin{array}{r} 4 \\ \underline{\quad} \end{array}$ | $\begin{array}{r} 1 \\ \underline{\quad} \end{array}$ | $\begin{array}{r} 8 \\ \underline{\quad} \end{array}$ |
|---|---|---|---|---|---|---|---|

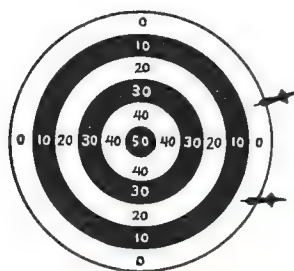
## Multiplying None, or by None

ZERO MULTIPLICATION FACTS

$$\begin{array}{r} 0 \\ +0 \\ \hline 0 \end{array} \text{ or } \begin{array}{r} 0 \\ \times 2 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 0 \\ 0 \text{ or } 0 \\ 0 \\ \hline 0 \end{array} \quad \begin{array}{r} 0 \\ \times 3 \\ \hline 0 \end{array}$$

In a game of darts, Bill got 0 on his first try and 0 on his second try. His score for the two tries was zero.



Kay got 0 on her first try, 0 on her second try, and 0 on her third try. Her score for the three tries was zero.

If a player gets 0 on every try, his score is 0, no matter how many tries he has.

Any number times 0, or 0 times any number, is 0.

$\begin{array}{r} 0 \\ \times 0 \\ \hline 0 \end{array}$	$\begin{array}{r} 0 \\ \times 1 \\ \hline 0 \end{array}$	$\begin{array}{r} 0 \\ \times 2 \\ \hline 0 \end{array}$	$\begin{array}{r} 0 \\ \times 3 \\ \hline 0 \end{array}$	$\begin{array}{r} 0 \\ \times 4 \\ \hline 0 \end{array}$	$\begin{array}{r} 0 \\ \times 5 \\ \hline 0 \end{array}$	$\begin{array}{r} 0 \\ \times 6 \\ \hline 0 \end{array}$	$\begin{array}{r} 0 \\ \times 7 \\ \hline 0 \end{array}$	$\begin{array}{r} 0 \\ \times 8 \\ \hline 0 \end{array}$	$\begin{array}{r} 0 \\ \times 9 \\ \hline 0 \end{array}$
$\begin{array}{r} 0 \\ \times 0 \\ \hline 0 \end{array}$	$\begin{array}{r} 1 \\ \times 0 \\ \hline 0 \end{array}$	$\begin{array}{r} 2 \\ \times 0 \\ \hline 0 \end{array}$	$\begin{array}{r} 3 \\ \times 0 \\ \hline 0 \end{array}$	$\begin{array}{r} 4 \\ \times 0 \\ \hline 0 \end{array}$	$\begin{array}{r} 5 \\ \times 0 \\ \hline 0 \end{array}$	$\begin{array}{r} 6 \\ \times 0 \\ \hline 0 \end{array}$	$\begin{array}{r} 7 \\ \times 0 \\ \hline 0 \end{array}$	$\begin{array}{r} 8 \\ \times 0 \\ \hline 0 \end{array}$	$\begin{array}{r} 9 \\ \times 0 \\ \hline 0 \end{array}$

## Multiplying Ten

Tom made a score of 10 on each of 5 tries.  $5 \times 10 = \underline{\quad ? \quad}$

There are two ways of doing this example.

The first way is to think of 10 as 1 ten.  $5 \times 1 \text{ ten} = \underline{\quad ? \quad}$  tens. How can you show 5 tens without writing the word *tens*? 5 tens =  $\underline{\quad ? \quad}$  Tom's score for 5 tries was  $\underline{\quad ? \quad}$ .

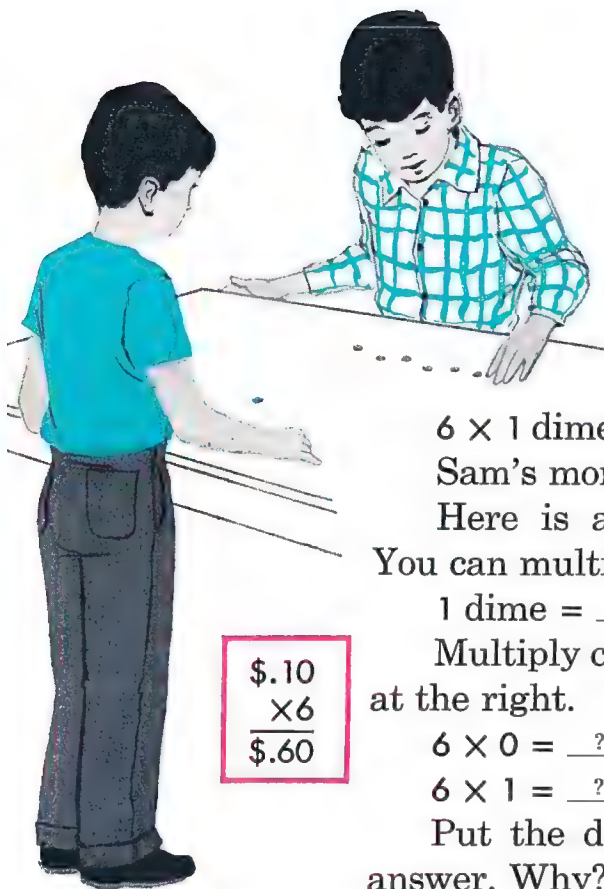
The second way is to multiply in two steps.

First multiply the ones.  $5 \times 0 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in ones place. Then multiply the tens.  $5 \times 1 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in tens place. Tom's score for 5 tries was  $\underline{\quad ? \quad}$ .

$$\begin{array}{r} 10 \\ \times 5 \\ \hline 50 \end{array}$$







## Multiplying Dimes

Tom had 1 dime. Sam had 6 times as many dimes as Tom. How much was Sam's money worth in cents?

Multiply to find the answer.

$$6 \times 1 \text{ dime} = \underline{\quad ? \quad} \text{ dimes, or } \underline{\quad ? \quad} \text{ cents}$$

Sam's money was worth  $\underline{\quad ? \quad}$  cents.

Here is another way of doing this example.

You can multiply in two steps.

$$1 \text{ dime} = \underline{\quad ? \quad} \text{ cents}$$

Multiply cents like any two-place number. Start at the right.

$$6 \times 0 = \underline{\quad ? \quad} \quad \text{Write } \underline{\quad ? \quad}$$

$$6 \times 1 = \underline{\quad ? \quad} \quad \text{Write } \underline{\quad ? \quad}$$

Put the dollar sign and decimal point in the answer. Why?

Sam's money was worth  $\underline{\quad ? \quad}$  cents.

$\begin{array}{r} \$.10 \\ \times 6 \\ \hline \$.60 \end{array}$
--

## Without Pencil or Paper

Say the answers to these examples.

- |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|
| $\begin{array}{r} 10 \\ \times 1 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ \times 4 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ \times 5 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ \times 6 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ \times 7 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ \times 8 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ \times 9 \\ \hline \end{array}$ |
|---|---|---|---|---|---|---|---|---|

Say the answers to these examples.

- |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|
| $\begin{array}{r} 1 \\ + 1 \\ \hline \end{array}$ | $\begin{array}{r} 2 \\ + 2 \\ \hline \end{array}$ | $\begin{array}{r} 3 \\ + 3 \\ \hline \end{array}$ | $\begin{array}{r} 4 \\ + 4 \\ \hline \end{array}$ | $\begin{array}{r} 5 \\ + 5 \\ \hline \end{array}$ | $\begin{array}{r} 6 \\ + 6 \\ \hline \end{array}$ | $\begin{array}{r} 7 \\ + 7 \\ \hline \end{array}$ | $\begin{array}{r} 8 \\ + 8 \\ \hline \end{array}$ | $\begin{array}{r} 9 \\ + 9 \\ \hline \end{array}$ |
|---|---|---|---|---|---|---|---|---|

- Give a multiplication example for each of the doubles in row 2. The first one will be  $2 \times 1$ .

## Multiplying Tens

Joan bought 3 packages of cookies. There were 20 cookies in each package. How many cookies was this in all?

In this problem, 3 equal groups of 20 are to be put together. You can multiply in one step if you think of it this way:  $20 = 2$  tens.  $3 \times 2$  tens = 6 tens, or 60.

You may multiply in two steps if it seems easier.

First multiply the ones.  $3 \times 0 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in ones place. Then multiply the tens.  $3 \times 2 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in tens place.

The answer is  $\underline{\quad ? \quad}$ .

If you add 3 twenties, the answer should be the same. Is it?

Joe bought 2 packages of paper napkins. There were 60 napkins in each package. How many napkins was this in all?

Multiply to find the answer. You can multiply in one step, this way:  $60 = 6$  tens.  $2 \times 6$  tens = 12 tens, or 120. There were  $\underline{\quad ? \quad}$  napkins in all.

You may multiply in two steps if it seems easier.

First multiply the ones.  $2 \times 0 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  Then multiply the tens.  $2 \times 6 = \underline{\quad ? \quad}$  12 tens are  $\underline{\quad ? \quad}$  hundred  $\underline{\quad ? \quad}$  tens. Write  $\underline{\quad ? \quad}$  Check by addition.

Copy each example, multiply, and check.

$\begin{array}{r} 20 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 30 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 20 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 40 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 50 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 70 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 80 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 90 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 20 \\ \times 5 \\ \hline \end{array}$
---	---	---	---	---	---	---	---	---



$$\begin{array}{r} 20 \\ \times 3 \\ \hline 60 \end{array}$$

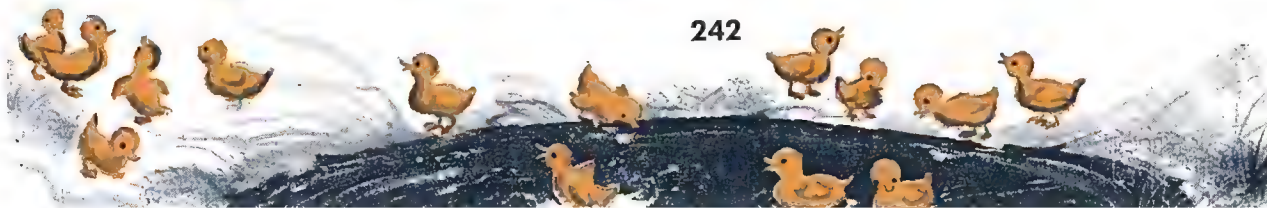
$$\begin{array}{r} 20 \\ 20 \\ +20 \\ \hline 60 \end{array}$$

$$\begin{array}{r} 60 \\ \times 2 \\ \hline 120 \\ \text{Check} \\ 60 \\ +60 \\ \hline 120 \end{array}$$

## Two Kinds of "Put Together" Problems

Solve these problems. All of them are "put together" problems. Multiply only when *equal* groups are to be put together. Add if the groups are *not* equal.

1. Sue had 20¢. Kay had 50¢. How many cents did both girls have together?
2. Tom had 3 bags of marbles. There were 20 marbles in each bag. How many marbles in all did Tom have?
3. Ruth bought 2 tickets for a movie. The tickets cost 40¢ each. How much did Ruth spend for tickets?
4. Dick's class went on three bus trips during the school year. The first trip was 10 miles, the second trip was 20 miles, and the third trip was 30 miles. How far all together did Dick's class go on the three trips?
5. Ted earned 30¢ a week for two weeks. How much in all did he earn in the two weeks?
6. Ellen made 60 "I Will Help You" cards. Alice made 70 cards. How many cards in all was this?
7. There were 6 rooms in the grade school. There were 20 pupils in each room. How many pupils in all were in the school?
8. Jim learned to spell 10 new words each week. How many new words did he learn to spell in 8 weeks?
9. Tony counted 50 books on one shelf and 40 books on another. How many books did Tony count in all?
10. Joe's father had 5 yards for ducks with 30 ducks in each yard. How many ducks were there in all?



## Multiplying Two-Place Numbers

Ruth made 2 pans of fudge for a party. She cut the fudge in each pan into 24 pieces. How many pieces of fudge did Ruth make for her party?



You could add to find the answer, as in the top box.

Ruth made   ?   pieces of fudge.

$$\begin{array}{r} 24 \\ +24 \\ \hline 48 \end{array}$$

You could multiply to find the answer, because the groups to be put together are equal. To multiply, you write the example as shown in the lower box.

$$\begin{array}{r} 24 \\ \times 2 \\ \hline 48 \end{array}$$

First multiply the ones.  $2 \times 4 = \underline{\quad ? \quad}$  Write   ?   in ones place. Then multiply the tens.  $2 \times 2 = \underline{\quad ? \quad}$  Write   ?   in tens place.

The answer is the same as in the addition example.

Ruth made   ?   pieces of fudge.

Copy the following examples. Find each answer. Then check by addition.

1.  $\begin{array}{r} 12 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 34 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 11 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 14 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 40 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 31 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 22 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 33 \\ \times 2 \\ \hline \end{array}$

2.  $\begin{array}{r} 13 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 31 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 32 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 41 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 42 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 43 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 21 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 24 \\ \times 2 \\ \hline \end{array}$

3. How much is  $3 \times \$0.02$ ?  $\begin{array}{r} 2¢ \\ \times 3 \\ \hline 6¢ \end{array}$   $\begin{array}{r} 2¢ \\ \times 3 \\ \hline 6¢ \end{array}$   $\begin{array}{r} \$0.02 \\ \times 3 \\ \hline \$0.06 \end{array}$   $\begin{array}{r} \$0.02 \\ \times 3 \\ \hline \$0.06 \end{array}$   
 Study the four ways of finding the answer shown at the right.

Find the answer to each of these examples four ways.

4.  $\begin{array}{r} \$0.03 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} \$0.02 \\ \times 4 \\ \hline \end{array}$   $\begin{array}{r} \$0.04 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} \$0.01 \\ \times 5 \\ \hline \end{array}$   $\begin{array}{r} \$0.20 \\ \times 4 \\ \hline \end{array}$   $\begin{array}{r} \$0.20 \\ \times 3 \\ \hline \end{array}$



### Three-Place Answers from Multiplying

Ted knew that there are 52 weeks in a year. He wanted to find out the number of weeks in 2 years. So he multiplied 52 by 2. Why?

Study the example at the side.

$$\begin{array}{r} 52 \\ \times 2 \\ \hline 104 \end{array}$$

Check

$$\begin{array}{r} 52 \\ 52 \\ \hline 104 \end{array}$$

First multiply the ones.  $2 \times 2 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in ones place. Then multiply the tens.  $2 \times 5 = \underline{\quad ? \quad}$  10 tens =  $\underline{\quad ? \quad}$  hundred  $\underline{\quad ? \quad}$  tens. Write  $\underline{\quad ? \quad}$  in hundreds place and  $\underline{\quad ? \quad}$  in tens place.

The answer is  $\underline{\quad ? \quad}$  weeks.

The answer is checked by adding. Are the answers the same?

Copy each example, multiply, and check.

- |    |   |   |   |   |   |   |   |   |
|----|---|---|---|---|---|---|---|---|
| 1. | $\begin{array}{r} 61 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 72 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 54 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 93 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 84 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 73 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 52 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 91 \\ \times 2 \\ \hline \end{array}$ |
| 2. | $\begin{array}{r} 63 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 51 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 82 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 74 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 92 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 53 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 62 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 81 \\ \times 2 \\ \hline \end{array}$ |
| 3. | $\begin{array}{r} 21 \\ \times 5 \\ \hline \end{array}$ | $\begin{array}{r} 21 \\ \times 6 \\ \hline \end{array}$ | $\begin{array}{r} 21 \\ \times 7 \\ \hline \end{array}$ | $\begin{array}{r} 21 \\ \times 8 \\ \hline \end{array}$ | $\begin{array}{r} 21 \\ \times 9 \\ \hline \end{array}$ | $\begin{array}{r} 21 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 21 \\ \times 4 \\ \hline \end{array}$ | $\begin{array}{r} 21 \\ \times 1 \\ \hline \end{array}$ |

Solve each problem by multiplying. Check by adding.

- The first grade in Ann's school used 64 bottles of milk each day. How many bottles did the first grade use in 2 days?
- The third and fourth grades together used 71 bottles of milk each day. How much did they use in 2 days?



## Answers in Dollars and Cents

Joe's older brother, Bill, sells newspapers. One week Bill made 83 cents on Monday and 83 cents on Tuesday. How much did he make in all in the two days?



Why can you multiply to find the answer?

Study the example at the side.

First multiply the ones.  $2 \times 3 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in ones place. Then multiply the tens.  $2 \times 8 = \underline{\quad ? \quad}$  16 tens =  $\underline{\quad ? \quad}$  hundred,  $\underline{\quad ? \quad}$  tens. Write  $\underline{\quad ? \quad}$  in hundreds place and  $\underline{\quad ? \quad}$  in tens place.

The answer is 166¢, or 1 dollar and 66 cents. With a dollar sign and a decimal point, the answer is \$1.66.

The whole example can be done using dollar signs and decimal points.

Copy each example, multiply, and check.

Remember to put a cent sign, or a dollar sign and a decimal point, in each answer.

- |   |  |  |   |   |   |   |
|---|--|--|---|---|---|---|
| 1. $\begin{array}{r} 71¢ \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 94¢ \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 54¢ \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} \$ .73 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} \$ .82 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} \$ .63 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} \$ .51 \\ \times 2 \\ \hline \end{array}$ |
| 2. $\begin{array}{r} 50¢ \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 30¢ \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 70¢ \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} \$ .40 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} \$ .60 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} \$ .90 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} \$ .80 \\ \times 2 \\ \hline \end{array}$ |

83¢
$\times 2$
<hr/>
166¢ or \$1.66

	Check
\$ .83	\$ .83
$\times 2$	$\times 2$
<hr/>	<hr/>
\$1.66	\$1.66

Solve these problems by multiplying. Check each answer by adding.

- Betty bought 2 notebooks for 53 cents each. How much did she spend for both notebooks?
- If movie tickets are 20 cents each, how much will 5 movie tickets cost?



### Schoolroom Helpers

Betty, Jane, Bob, and Jim take their turn as schoolroom helpers. They look out for supplies, feed the fish, dust, and put things in place.

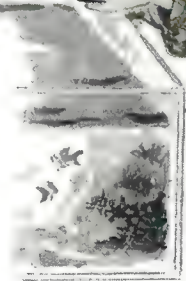
Solve the children's problems. In each problem find the number that tells how many equal groups there are. Then find the number that tells how many are in each group. Multiply to put the equal groups together.

1. Betty is putting away the reading books on two shelves. Each shelf holds 24 books. How many books in all can Betty put on the 2 shelves?
2. Jane has put 2 boxes of pencils on the teacher's desk. In each box are 72 pencils. How many pencils has Jane put on the teacher's desk?





3. Bob bought 2 boxes of fish food at 20¢ a box. How much did Bob spend for the fish food?
4. Jim gives out drinking straws to the children for their milk. He gives out 20 straws each day. How many will he give out in 5 days?
5. There are 9 school days before vacation. Betty hands out 20 paper napkins each day for lunch. How many will she hand out in the 9 days?
6. Jane takes care of the paper used by the class. The class uses 40 sheets of paper each day. How many sheets of paper will the class use in 5 days?





## Practice to Remember

Copy and multiply. Make "I Will Help You" cards for any facts hard to remember. Practice with the cards until you feel sure you know each fact.

1.  $\begin{array}{r} 1 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 3 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 5 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 7 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 9 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 4 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 6 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 8 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 0 \\ \times 2 \\ \hline \end{array}$
2.  $\begin{array}{r} 2 \\ \times 3 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 4 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 1 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 8 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 7 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 9 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 6 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 0 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 5 \\ \hline \end{array}$

Copy each example, multiply, and check by adding.

3.  $\begin{array}{r} 31 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 40 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 91 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 80 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} \$1.12 \\ \times 3 \\ \hline \end{array}$   $\begin{array}{r} \$5.00 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} \$6.63 \\ \times 2 \\ \hline \end{array}$

Add down. Check by adding up.

4.  $\begin{array}{r} 49 \\ 97 \\ 78 \\ 53 \\ \hline \end{array}$   $\begin{array}{r} 89 \\ 99 \\ 67 \\ 48 \\ \hline \end{array}$   $\begin{array}{r} 98 \\ 88 \\ 96 \\ 89 \\ \hline \end{array}$   $\begin{array}{r} 65 \\ 99 \\ 78 \\ 67 \\ \hline \end{array}$   $\begin{array}{r} 23 \\ 57 \\ 49 \\ 56 \\ \hline \end{array}$   $\begin{array}{r} 71 \\ 68 \\ 75 \\ 64 \\ \hline \end{array}$   $\begin{array}{r} 37 \\ 58 \\ 86 \\ 45 \\ \hline \end{array}$   $\begin{array}{r} 14 \\ 49 \\ 96 \\ 73 \\ \hline \end{array}$
5.  $\begin{array}{r} 496 \\ 175 \\ \hline \end{array}$   $\begin{array}{r} 267 \\ 345 \\ \hline \end{array}$   $\begin{array}{r} 128 \\ 75 \\ \hline \end{array}$   $\begin{array}{r} 759 \\ 171 \\ \hline \end{array}$   $\begin{array}{r} \$6.05 \\ 1.99 \\ \hline \end{array}$   $\begin{array}{r} \$3.57 \\ 1.42 \\ \hline \end{array}$   $\begin{array}{r} \$5.08 \\ 3.09 \\ \hline \end{array}$

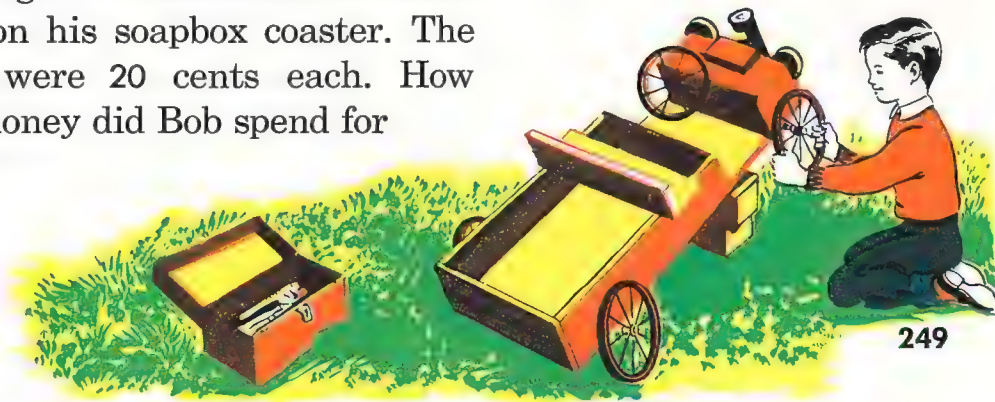
Subtract. Check by adding.

6.  $\begin{array}{r} 710 \\ 458 \\ \hline \end{array}$   $\begin{array}{r} 613 \\ 387 \\ \hline \end{array}$   $\begin{array}{r} 203 \\ 128 \\ \hline \end{array}$   $\begin{array}{r} 612 \\ 267 \\ \hline \end{array}$   $\begin{array}{r} 930 \\ 759 \\ \hline \end{array}$   $\begin{array}{r} 671 \\ 496 \\ \hline \end{array}$   $\begin{array}{r} 501 \\ 378 \\ \hline \end{array}$
7.  $\begin{array}{r} \$4.64 \\ 3.86 \\ \hline \end{array}$   $\begin{array}{r} \$8.17 \\ 5.08 \\ \hline \end{array}$   $\begin{array}{r} \$8.04 \\ 6.05 \\ \hline \end{array}$   $\begin{array}{r} \$4.99 \\ 3.57 \\ \hline \end{array}$   $\begin{array}{r} \$3.44 \\ 2.58 \\ \hline \end{array}$   $\begin{array}{r} \$5.03 \\ 2.47 \\ \hline \end{array}$
8.  $\begin{array}{r} \$5.00 \\ .94 \\ \hline \end{array}$   $\begin{array}{r} \$6.11 \\ .37 \\ \hline \end{array}$   $\begin{array}{r} \$7.02 \\ 6.49 \\ \hline \end{array}$   $\begin{array}{r} \$8.20 \\ .92 \\ \hline \end{array}$   $\begin{array}{r} \$9.02 \\ 8.68 \\ \hline \end{array}$   $\begin{array}{r} \$5.05 \\ 4.99 \\ \hline \end{array}$

## To Add or Multiply, That Is the Question

All of these problems are “put together” problems. Multiply if the groups are equal. Add if the groups are *not* equal.

1. Ellen had 2 baskets with 12 buttons in each basket. How many buttons was this in all?
2. Sue had 12 red buttons and 18 blue buttons. How many buttons did Sue have?
3. Tony sold 21 papers every day. In 5 days how many papers did he sell?
4. Tom had two piggy banks. In one he had \$.53. In the other he had \$.57. How much money did Tom have in both banks?
5. Ruth spent 15¢ one day and 25¢ the next day. How much did she spend in the two days?
6. Joan bought 2 yards of cloth to make doll dresses. The cloth cost \$.63 a yard. How much did Joan pay for the cloth she bought?
7. Alice also bought two yards of cloth. One yard cost \$.63 and the other yard cost \$.59. How much did Alice pay for the cloth she bought?
8. Jack kept his stamps in 8 envelopes. In each envelope he had 20 stamps. How many stamps in all is that?
9. Bob bought 4 secondhand wheels to put on his soapbox coaster. The wheels were 20 cents each. How much money did Bob spend for wheels?





### Problems about Equal Groups

After reading each problem, ask yourself questions like the ones below.

Is this a problem about equal groups?  
Is it about putting equal groups together?  
Is it about finding how many equal groups there are?  
Is it about finding how many are in each equal group?

Then see if you can solve the problem.

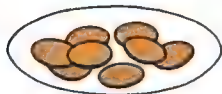
1. Mary had some pennies. She put them in 3 stacks with 5 pennies in each stack. How many pennies did Mary have?



2. Bob bought 4 stamps. He paid 2 cents for each stamp. How much did the stamps cost Bob?



3. Fred had 2 bags of marbles. There were 8 marbles in each bag. He put all of the marbles in one bag. How many marbles in all were in the bag then?



4. Jane came to see Ellen. Her mother gave the two girls a plate of 8 cookies. The girls shared the cookies equally. Each took the same number of cookies. How many cookies did each of the 2 girls take?
5. Ann had 14 pennies. She spent 2 of them each day until all of them were spent. How many days did it take Ann to spend the pennies?

## Finding the Number of Equal Groups

Ruth had 6 lollipops. She planned to eat 2 lollipops a day. How many days would the 6 lollipops last?

Ruth used a picture to find the answer. She crossed off 2 lollipops for each day. She found the number of twos in 6.

Ruth said, "There are 3 twos in 6, so the lollipops would last 3 days."

Dick said, "You were *dividing* when you found the number of twos in 6. You could have used numbers instead of pictures. You could have used the *division fact*, 6 divided by 2 is 3."

Dick wrote the fact with signs like this:  $6 \div 2 = 3$   
The sign  $\div$  means *divided by*.

Ruth said, "If I used a division fact, I would have to know the fact, wouldn't I?"

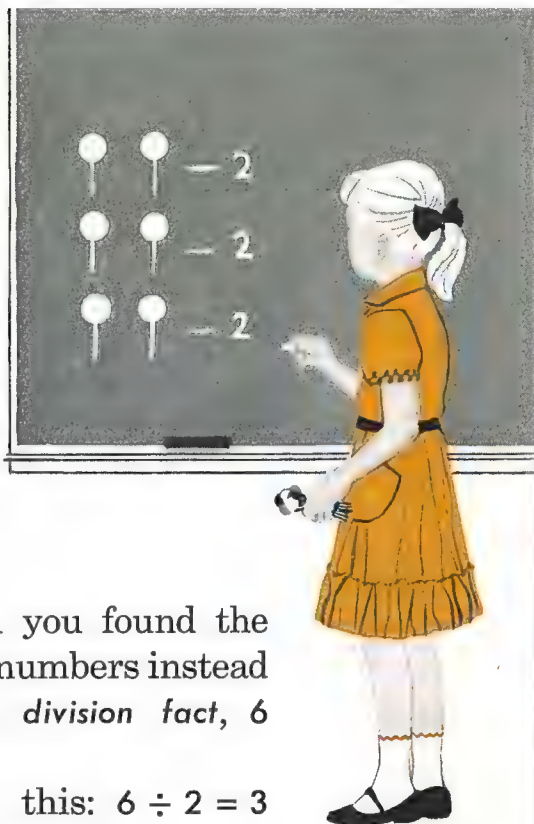
"Yes," said Dick, "but you can find division facts by subtracting." Dick wrote 6 and kept subtracting 2, until 0 was left.

1. How many times did Dick subtract 2?
2. Dick found by subtracting that there are three 2's in 6, or that  $6 \div 2 = \underline{\quad}$ .

Copy the following division examples. Find each answer by subtracting, as Dick did.

3.  $4 \div 2 =$        $8 \div 2 =$        $12 \div 2 =$        $2 \div 2 =$

4.  $14 \div 2 =$        $10 \div 2 =$        $18 \div 2 =$        $16 \div 2 =$



6
<u>-2</u>
4
<u>-2</u>
2
<u>-2</u>
0



## Another Way to Write Division Facts

FACTS OF 2

$$\begin{array}{r} 3 \\ 2 \overline{)6} \end{array}$$

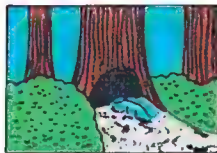
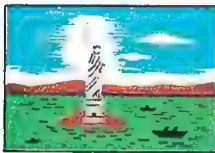
Sometimes you write  $6 \div 2 = 3$  as shown in the box.

Read the fact this way: "There are 3 twos in 6, or 6 divided by 2 is 3."

1. Read each of the following division facts. Copy them without the answers. Then close your book and see if you can write all the answers correctly.

$$\begin{array}{r} 1 \\ 2 \overline{)2} \end{array} \quad \begin{array}{r} 2 \\ 2 \overline{)4} \end{array} \quad \begin{array}{r} 3 \\ 2 \overline{)6} \end{array} \quad \begin{array}{r} 4 \\ 2 \overline{)8} \end{array} \quad \begin{array}{r} 5 \\ 2 \overline{)10} \end{array} \quad \begin{array}{r} 6 \\ 2 \overline{)12} \end{array} \quad \begin{array}{r} 7 \\ 2 \overline{)14} \end{array} \quad \begin{array}{r} 8 \\ 2 \overline{)16} \end{array} \quad \begin{array}{r} 9 \\ 2 \overline{)18} \end{array}$$

Read each problem. Then draw a picture to help you solve the problem. One is drawn to show you how. Beside each picture that you make, write the division fact that should go with it.



$$\begin{array}{r} 2 \\ 2 \overline{)10} \end{array}$$

2. Sam has ten 1-cent stamps to use on post cards. Each post card needs two 1-cent stamps. How many cards can Sam send with his 10 stamps?
3. How many 2-cent stamps can Ann buy for 8¢?
4. Bill had 12¢ to spend for pencils. Each pencil costs 2¢. How many pencils could Bill buy?
5. Mary had 10¢ to spend for candy. How many 2-cent mints can she get with her money?
6. Joe saw some little toy cars. They cost 2¢ each. How many could Joe buy with 18¢?



2 Halves

## One Half of a Whole and of a Group

The picture shows a circle cut into 2 equal parts. Each of the 2 equal parts is one half of the whole circle.

One half is written with figures this way:  $\frac{1}{2}$ .

$\frac{1}{2}$  means  $\frac{1 \text{ of the}}{2 \text{ equal parts}}$  of the whole



Copy the square shown at the side. Copy it four times. See if you can find four ways to cut a square into halves with a line.

Bob's mother said to him, "Half of these cookies are for lunch. Put half of them on a plate and half of them in the cookie jar."

Bob counted and found there were 12 cookies. He divided them into 2 equal groups.

1. How many cookies did Bob put on a plate?
2. How many cookies did he put away in the cookie jar? The picture shows that:



6 =  $\frac{1 \text{ of the}}{2 \text{ equal parts}}$  of 12

3.  $\frac{1}{2}$  of 12 means 12 divided by 2.  $12 \div 2 = \underline{\quad ? \quad}$

Copy each example. Say what the example means. Then write the answer.

4.  $\frac{1}{2}$  of 2 =       $\frac{1}{2}$  of 8 =       $\frac{1}{2}$  of 4 =       $\frac{1}{2}$  of 10 =
5.  $\frac{1}{2}$  of 6 =       $\frac{1}{2}$  of 14 =       $\frac{1}{2}$  of 18 =       $\frac{1}{2}$  of 16 =

To find one half of a number divide it by 2.

## Sharing Things Equally

You can solve the following problems by division, because in each problem you are to find one of the *equal* parts of a group.

1. Tom and Jack are pals. They plan to share 18 marbles equally. How many marbles should each boy take?

You can find the answer by finding  $\frac{1}{2}$  of 18.  
 $\frac{1}{2}$  of 18 means  $18 \div 2$ , or    ?   .

2. Ann has 14 paper dolls. She wishes to give  $\frac{1}{2}$  of them to Jane. How many will she give to Jane?







3. Jack and Tom wish to share 10 cents equally. How many cents should each boy take?
4. Patsy says she will give Betty  $\frac{1}{2}$  of her 16 crayons. That will be how many crayons?
5. If I share 8 pencils equally with my friend, how many pencils shall I keep?
6. "There is a plate of cookies on the table," said Mother. "Take half for yourself and give Bob half." There were 6 cookies on the plate. How many should I give to Bob?
7. On Saturday morning we have 4 hours to play. We plan to spend half the time at Ann's house and half the time at Betty's house. How many hours do we plan to spend at each house?
8. Kay's mother told her to buy  $\frac{1}{2}$  dozen eggs. A dozen is 12. How many eggs should Kay buy?





## Division Facts That Go Together

In the picture at the left there are 16 apples. How many apples are in each row? How many rows are there? Does the picture show that there are 8 twos in 16? Then  $16 \div 2 = 8$ .

Now look at the columns of apples. How many apples are in each column? How many columns are there? Does the picture also show that there are 2 eights in 16? Then  $16 \div 8 = 2$ .

1. See if you can make a dot picture to show both of these facts:  $18 \div 2 = 9$ ,  $18 \div 9 = 2$ .
2. Look at this pair of facts:  $14 \div 2 = 7$ ,  $14 \div 7 = 2$ .

How are both facts alike? How are they different?

Some division facts go together. If you learn one, you know the other.

Say the missing number in each pair of facts below.

3.  $\begin{cases} 2 \div 2 = 1 \\ 2 \div 1 = ? \end{cases} \quad \begin{cases} 6 \div 2 = 3 \\ 6 \div 3 = ? \end{cases} \quad \begin{cases} 8 \div 2 = 4 \\ 8 \div 4 = ? \end{cases} \quad \begin{cases} 10 \div 2 = 5 \\ 10 \div 5 = ? \end{cases}$
4.  $\begin{cases} 12 \div 2 = 6 \\ 12 \div 6 = ? \end{cases} \quad \begin{cases} 14 \div 2 = 7 \\ 14 \div 7 = ? \end{cases} \quad \begin{cases} 16 \div 2 = 8 \\ 16 \div 8 = ? \end{cases} \quad \begin{cases} 18 \div 2 = 9 \\ 18 \div 9 = ? \end{cases}$

5. Read the following division facts. They are easy to learn because all the answers are the same. The first fact is read, "There are 2 ones in 2."

$$\begin{array}{r} 2 \\ 1 \overline{)2} \end{array} \quad \begin{array}{r} 2 \\ 2 \overline{)4} \end{array} \quad \begin{array}{r} 2 \\ 3 \overline{)6} \end{array} \quad \begin{array}{r} 2 \\ 4 \overline{)8} \end{array} \quad \begin{array}{r} 2 \\ 5 \overline{)10} \end{array} \quad \begin{array}{r} 2 \\ 6 \overline{)12} \end{array} \quad \begin{array}{r} 2 \\ 7 \overline{)14} \end{array} \quad \begin{array}{r} 2 \\ 8 \overline{)16} \end{array} \quad \begin{array}{r} 2 \\ 9 \overline{)18} \end{array}$$

6. In reading from left to right, what numbers do you see that are the same as counting forward by 2's?

## Learning Multiplication and Division Facts in Families



1. Use the picture to help you answer these questions:

How many rows of stars are there?

How many stars are in each row?

How many stars are there in all?  $6 \times 2 = 12$

How many columns of stars are there?

How many stars are in each column?  $2 \times 6 = 12$

How many rows of 2 stars will 12 make?  $12 \div 2 = 6$

How many columns of 6 stars will 12 make?  $12 \div 6 = 2$

2. The four facts above may be written like this:

$$\begin{array}{r} 2 \\ \times 6 \\ \hline 12 \end{array}$$

$$\begin{array}{r} 6 \\ \times 2 \\ \hline 12 \end{array}$$

$$2 \overline{)12}$$

$$6 \overline{)12}$$

Why do those four facts make a family? How are they alike? How are they different? If you know one fact, you know the other three. Why?

Tell two multiplication facts and two division facts that each of these pictures shows.



Write two multiplication and two division facts with each of these groups of three numbers.

6. 1, 2, 2      6, 3, 2      8, 4, 2      10, 5, 2

7. 12, 6, 2      14, 7, 2      16, 8, 2      18, 9, 2

8. How many facts can you write with 4, 2, 2? Why are there only two facts in this family?



## Two Reasons for Dividing

Ellen had 10 cents to spend for lollipops costing 2 cents each. How many lollipops could she buy?

First Ellen had to find out how many groups of 2 cents are in 10 cents. Why?

To find out she took 10 pennies and piled them in 2's.

How many piles of 2 are there? Will each pile buy one lollipop? Then how many lollipops in all can Ellen buy for 10 cents?  $10 \div 2 = 5$

The answer means 5 lollipops at 2¢ each.

Ted had 10 cents to spend, too. He brought 2 apples to school and said, "Each apple cost the same and I spent 10 cents for both. To find out whether 10 cents was enough for 2 apples, I put 10 pennies in 2 equal piles."

Why did Ted make 2 piles? How many pennies were in each pile? Then how much did each apple cost?  $10 \div 2 = 5$

The answer means 5 cents in each of 2 equal groups.

Do you see that  $10 \div 2 = 5$  can tell two different stories? The stories depend upon what the numbers in the problem stand for and what the problem asks.

Ellen divided 10 by 2 to find *how many groups of 2 cents* were in 10 cents.

Ted divided 10 by 2 to find *how many cents were in each of 2 equal groups*.



Divide to find how many equal groups there are.  
Divide to find the number in each of the equal groups.

## Practice to Remember

Copy each example and write the answer. Make "I Will Help You" cards for any facts hard to remember. Practice with the cards until you know each fact.

$$\begin{array}{r} 1. \quad \begin{array}{r} 2 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} 3 \\ \times 2 \\ \hline \end{array} \quad \begin{array}{r} 2 \\ \times 5 \\ \hline \end{array} \quad \begin{array}{r} 4 \\ \times 2 \\ \hline \end{array} \quad \begin{array}{r} 6 \\ \times 2 \\ \hline \end{array} \quad \begin{array}{r} 2 \\ \times 4 \\ \hline \end{array} \quad \begin{array}{r} 2 \\ \times 6 \\ \hline \end{array} \quad \begin{array}{r} 9 \\ \times 2 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ \times 2 \\ \hline \end{array} \quad \begin{array}{r} 8 \\ \times 2 \\ \hline \end{array} \end{array}$$

$$\begin{array}{r} 2. \quad \begin{array}{r} 0 \\ \times 2 \\ \hline \end{array} \quad \begin{array}{r} 2 \\ \times 0 \\ \hline \end{array} \quad \begin{array}{r} 2 \\ \times 9 \\ \hline \end{array} \quad \begin{array}{r} 2 \\ \times 7 \\ \hline \end{array} \quad \begin{array}{r} 2 \\ \times 8 \\ \hline \end{array} \quad \begin{array}{r} 1 \\ \times 2 \\ \hline \end{array} \quad \begin{array}{r} 2 \\ \times 1 \\ \hline \end{array} \quad \begin{array}{r} 2 \\ \times 2 \\ \hline \end{array} \quad \begin{array}{r} 5 \\ \times 2 \\ \hline \end{array} \end{array}$$

$$3. \quad \begin{array}{r} 3 \overline{)6} \quad 2 \overline{)6} \quad 5 \overline{)10} \quad 2 \overline{)8} \quad 2 \overline{)12} \quad 4 \overline{)8} \quad 2 \overline{)18} \quad 2 \overline{)14} \quad 2 \overline{)16} \end{array}$$

$$4. \quad \begin{array}{r} 2 \overline{)0} \quad 9 \overline{)18} \quad 7 \overline{)14} \quad 2 \overline{)2} \quad 1 \overline{)2} \quad 2 \overline{)4} \quad 2 \overline{)10} \quad 6 \overline{)12} \quad 8 \overline{)16} \end{array}$$

Copy and add down. Check by adding up.

$$\begin{array}{r} 5. \quad \begin{array}{r} 578 \\ 139 \\ \hline 245 \end{array} \quad \begin{array}{r} 167 \\ 457 \\ \hline 198 \end{array} \quad \begin{array}{r} 259 \\ 184 \\ \hline 298 \end{array} \quad \begin{array}{r} 168 \\ 308 \\ \hline 347 \end{array} \quad \begin{array}{r} \$2.89 \\ 1.75 \\ \hline 2.69 \end{array} \quad \begin{array}{r} \$3.96 \\ 1.89 \\ \hline 2.78 \end{array} \end{array}$$

Copy and subtract. Check by adding.

$$6. \quad \begin{array}{r} 457 \\ 298 \\ \hline \end{array} \quad \begin{array}{r} 946 \\ 397 \\ \hline \end{array} \quad \begin{array}{r} 834 \\ 486 \\ \hline \end{array} \quad \begin{array}{r} 625 \\ 378 \\ \hline \end{array} \quad \begin{array}{r} \$7.68 \\ 2.79 \\ \hline \end{array} \quad \begin{array}{r} \$5.33 \\ 1.97 \\ \hline \end{array}$$

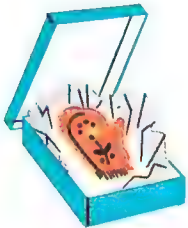
$$7. \quad \begin{array}{r} 717 \\ 439 \\ \hline \end{array} \quad \begin{array}{r} 911 \\ 568 \\ \hline \end{array} \quad \begin{array}{r} 856 \\ 389 \\ \hline \end{array} \quad \begin{array}{r} 372 \\ 187 \\ \hline \end{array} \quad \begin{array}{r} \$7.45 \\ 3.89 \\ \hline \end{array} \quad \begin{array}{r} \$5.51 \\ 3.79 \\ \hline \end{array}$$

$$8. \quad \begin{array}{r} 953 \\ 546 \\ \hline \end{array} \quad \begin{array}{r} 825 \\ 746 \\ \hline \end{array} \quad \begin{array}{r} 912 \\ 886 \\ \hline \end{array} \quad \begin{array}{r} 931 \\ 626 \\ \hline \end{array} \quad \begin{array}{r} \$7.49 \\ 6.59 \\ \hline \end{array} \quad \begin{array}{r} \$9.40 \\ 7.37 \\ \hline \end{array}$$

$$9. \quad \begin{array}{r} 622 \\ 535 \\ \hline \end{array} \quad \begin{array}{r} 311 \\ 102 \\ \hline \end{array} \quad \begin{array}{r} 822 \\ 654 \\ \hline \end{array} \quad \begin{array}{r} 190 \\ 189 \\ \hline \end{array} \quad \begin{array}{r} \$9.33 \\ 7.35 \\ \hline \end{array} \quad \begin{array}{r} \$8.10 \\ 5.45 \\ \hline \end{array}$$

$$10. \quad \begin{array}{r} 600 \\ 242 \\ \hline \end{array} \quad \begin{array}{r} 900 \\ 631 \\ \hline \end{array} \quad \begin{array}{r} 803 \\ 224 \\ \hline \end{array} \quad \begin{array}{r} 905 \\ 418 \\ \hline \end{array} \quad \begin{array}{r} \$7.04 \\ 5.96 \\ \hline \end{array} \quad \begin{array}{r} \$6.06 \\ 4.77 \\ \hline \end{array}$$





### To Multiply or Divide, That Is the Question

Solve the following problems. Read each problem and its question. Make a picture of the problem in your mind. If equal groups are to be put together, multiply. If equal groups are to be made from a larger group, divide.

1. Mary's mother bought her 2 new pairs of shoes. How many shoes was that?
2. Mary looked at 8 pairs of shoes before she could pick the ones she wanted. How many shoes are there in 8 pairs? in 4 pairs? in 3 pairs? in 7 pairs?
3. Mary counted some shoes that she saw in the store. If she counted 10 shoes, how many pairs is that? 16 shoes? 18 shoes?
4. If mittens are packed a pair to a box, how many mittens will there be in 6 boxes? 5 boxes? 9 boxes?
5. How many boxes will be needed to pack 12 mittens, a pair to a box? How many boxes will be needed for 6 mittens? 8 mittens? 14 mittens?
6. Grandmother found 6 dolls in the attic. She gave them to Kay and Betsy. If they shared the dolls equally, how many did each girl get?



7. Bob and Tom are making toy wagons. It takes 4 wheels for each wagon. How many wheels do they need for 2 wagons?
8. Carl has 10 badges. He wants to give half of them to his brother. How many should he give to his brother?

## Families of Multiplication and Division Facts

You have learned that some multiplication and division facts go together. The dot picture shows two multiplication facts and two division facts that go together. The four facts all use the numbers 16, 2, and 8. Tell how the picture shows that:



$$8 \times 2 = 16 \quad 2 \times 8 = 16 \quad 16 \div 8 = 2 \quad 16 \div 2 = 8$$

Why do these four facts belong in one family? If you know one of the facts, you know the other three. Why?

Each of the following rows makes a family of four facts. Copy each row and write the missing numbers.

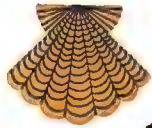
1.  $3 \times 2 = \underline{\quad ? \quad}$   $2 \times 3 = \underline{\quad ? \quad}$   $6 \div 3 = \underline{\quad ? \quad}$   $6 \div 2 = \underline{\quad ? \quad}$
2.  $1 \times 2 = \underline{\quad ? \quad}$   $2 \times 1 = \underline{\quad ? \quad}$   $2 \div 1 = \underline{\quad ? \quad}$   $2 \div 2 = \underline{\quad ? \quad}$
3.  $4 \times 2 = \underline{\quad ? \quad}$   $2 \times 4 = \underline{\quad ? \quad}$   $8 \div 4 = \underline{\quad ? \quad}$   $8 \div 2 = \underline{\quad ? \quad}$
4.  $5 \times 2 = \underline{\quad ? \quad}$   $2 \times 5 = \underline{\quad ? \quad}$   $10 \div 5 = \underline{\quad ? \quad}$   $10 \div 2 = \underline{\quad ? \quad}$

Copy each of the facts below. Then write the three other facts that belong in its family.

5.  $6 \times 2 = 12$      $7 \times 2 = 14$      $8 \times 2 = 16$      $9 \times 2 = 18$

Make a family of two multiplication facts and two division facts from each of these groups of numbers:

6. 12, 2, 6                      14, 2, 7                      18, 2, 9
7. Make a family of multiplication and division facts with 4, 2, 2. You will find there are only two facts in this family. Why is this so?
8. Draw one dot picture that shows a family of four facts. Beside it write the four facts it shows.



## Dividing a Number by One and by Itself

DIVISION FACTS OF 1

- Ann brought back 8 pretty shells from the beach. She gave 1 shell to each of her friends until all the shells were gone. How many of Ann's friends got a shell from her?

The answer is the same as the number of shells. Why? Then  $8 \div 1 = \underline{\quad ? \quad}$

- Suppose Ann had brought back 6 shells. To how many friends could she have given 1 shell?  $6 \div 1 = \underline{\quad ? \quad}$
- If  $7 \times 1 = 7$ , how much is  $7 \div 1$ ?

Any number divided by 1 is that number.

Copy each example and write the answer.

4.  $1 \overline{)0}$      $1 \overline{)1}$      $1 \overline{)2}$      $1 \overline{)3}$      $1 \overline{)4}$      $1 \overline{)5}$      $1 \overline{)6}$      $1 \overline{)7}$

5.  $1 \overline{)8}$      $1 \overline{)9}$      $1 \overline{)10}$      $1 \overline{)11}$      $1 \overline{)12}$      $1 \overline{)58}$      $1 \overline{)75}$

- Ted had 8 stamps of a kind he did not need for his collection. How many stamps could Ted give to each of 8 friends?

 Study the picture.  $8 \div 8 = \underline{\quad ? \quad}$

- If  $1 \times 5 = 5$ , how much is  $5 \div 5$ ?

Any number except 0 divided by itself is 1.

Copy each example and write the answer.

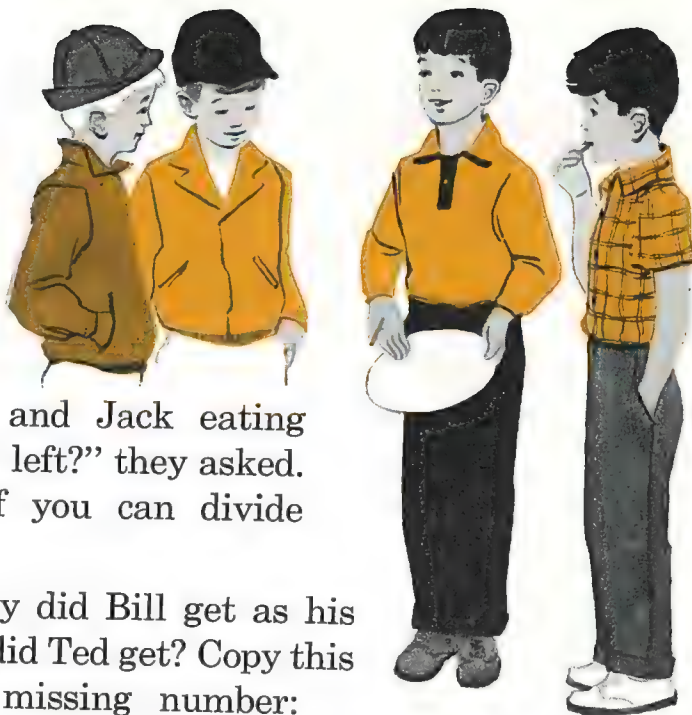
8.  $1 \overline{)1}$      $2 \overline{)2}$      $3 \overline{)3}$      $4 \overline{)4}$      $5 \overline{)5}$      $6 \overline{)6}$      $7 \overline{)7}$      $8 \overline{)8}$

9.  $9 \overline{)9}$      $10 \overline{)10}$      $25 \overline{)25}$      $30 \overline{)30}$      $46 \overline{)46}$      $138 \overline{)138}$

## Nothing to Share

ZERO DIVISION FACTS

Tom and Jack shared equally 4 pieces of candy that were on the plate. How many pieces did each have as his share?



Bill and Ted saw Tom and Jack eating candy. "May we share what is left?" they asked.

"Yes," laughed Tom, "if you can divide nothing by 2."

1. How many pieces of candy did Bill get as his share of none? How many did Ted get? Copy this example and write the missing number:

$$0 \div 2 = \underline{\quad ? \quad}$$

Read these division facts. They are easy to remember, because all of them have the same answer.

$$\begin{array}{l} 0 \\ 1 \overline{)0} \end{array} \quad \begin{array}{l} 0 \\ 2 \overline{)0} \end{array} \quad \begin{array}{l} 0 \\ 3 \overline{)0} \end{array} \quad \begin{array}{l} 0 \\ 4 \overline{)0} \end{array} \quad \begin{array}{l} 0 \\ 5 \overline{)0} \end{array} \quad \begin{array}{l} 0 \\ 6 \overline{)0} \end{array} \quad \begin{array}{l} 0 \\ 7 \overline{)0} \end{array} \quad \begin{array}{l} 0 \\ 8 \overline{)0} \end{array} \quad \begin{array}{l} 0 \\ 9 \overline{)0} \end{array}$$

When zero is divided by any other number, the answer is zero.

Study again the addition and subtraction facts about zero on page 7, and the multiplication facts on page 239. Then copy the following examples and write the answers.

$$2. \quad 6 + 0 = \quad 3 - 0 = \quad 0 \times 2 = \quad 0 \div 7 =$$

$$3. \quad 0 + 6 = \quad 8 - 0 = \quad 8 \times 0 = \quad 0 \div 9 =$$

$$4. \quad \begin{array}{r} 0 \\ +6 \\ \hline \end{array} \quad \begin{array}{r} 2 \overline{)0} \\ \hline \end{array} \quad \begin{array}{r} 8 \\ -0 \\ \hline \end{array} \quad \begin{array}{r} 4 \overline{)0} \\ \hline \end{array} \quad \begin{array}{r} 0 \\ \times 2 \\ \hline \end{array} \quad \begin{array}{r} 1 \overline{)0} \\ \hline \end{array} \quad \begin{array}{r} 7 \\ \times 0 \\ \hline \end{array} \quad \begin{array}{r} 5 \overline{)0} \\ \hline \end{array}$$



First Share



Second Share



Third Share



## Dividing Two-Place Numbers and Checking

Three boys wished to share 60 stamps equally. Each boy's share will be how many stamps?

In this problem a group of 60 is to be made into 3 equal groups, so you divide 60 by 3. You can divide in two ways.

The stamps are in strips of 10.

$$6 \text{ tens} \div 3 = \underline{\quad ? \quad} \text{ tens, or } \underline{\quad ? \quad}$$

The answer is  $\underline{\quad ? \quad}$  stamps.

If it seems easier, you can divide 60 in two steps.

First divide the tens.  $6 \div 3 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in tens place over 6. Then divide the ones.  $0 \div 3 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in ones place over 0.

You can check the answer by multiplying.

If  $60 \div 3 = 20$ , then three 20's, or  $3 \times 20$ , must be 60.

Suppose there were 63 stamps for the 3 boys to share. How many would each boy have then?

Divide 63 in two steps.  $63 = \underline{\quad ? \quad}$  tens  $\underline{\quad ? \quad}$  ones.

First divide the tens.  $6 \div 3 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in tens place over 6. Then divide the ones.  $3 \div 3 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in ones place over 3.

The answer is  $\underline{\quad ? \quad}$  stamps.

Make a picture with stamps to show the three shares. Then check the answer by multiplication.

Copy each example, divide, and check.

$$\begin{array}{r} 20 \\ 3 \overline{)60} \end{array}$$

Check

$$\begin{array}{r} 20 \\ \times 3 \\ \hline 60 \end{array}$$

$$\begin{array}{r} 21 \\ 3 \overline{)63} \end{array}$$

Check

$$\begin{array}{r} 21 \\ \times 3 \\ \hline 63 \end{array}$$

- |                       |                    |                    |                    |                    |                    |
|-----------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 1. $3 \overline{)30}$ | $2 \overline{)60}$ | $2 \overline{)40}$ | $2 \overline{)20}$ | $2 \overline{)80}$ | $4 \overline{)80}$ |
| 2. $3 \overline{)36}$ | $3 \overline{)63}$ | $4 \overline{)88}$ | $3 \overline{)33}$ | $4 \overline{)84}$ | $3 \overline{)66}$ |
| 3. $3 \overline{)60}$ | $4 \overline{)40}$ | $2 \overline{)22}$ | $2 \overline{)28}$ | $2 \overline{)26}$ | $2 \overline{)44}$ |

## Dividing Numbers Having More Than Nine Tens

Two girls shared 120 paper dolls equally. Each girl's share was how many?

To find the answer, divide 120 by 2.

Are there enough dolls for each girl to have 100? Then think of 120 as   ?   tens.

$12 \text{ tens} \div 2 = \underline{\quad ? \quad} \text{ tens}$ , or   ?  .

Each girl had   ?   paper dolls.

If it seems easier, you can divide in two steps.  $120 = \underline{\quad ? \quad} \text{ tens } \underline{\quad ? \quad} \text{ ones}$ . First divide the tens.  $12 \div 2 = \underline{\quad ? \quad}$  Write   ?   in tens place over the 2. Then divide the ones.  $0 \div 2 = \underline{\quad ? \quad}$  Write   ?   in ones place over the 0.

Check by multiplying.

Joe has 124 chickens. Joe's father asked him to put half the chickens in one pen and half in another. How many chickens should Joe put in each pen?

To find the answer, divide 124 by 2. Are there enough chickens for Joe to put 100 in each pen? Then think of 124 as 12 tens and 4 ones.

First divide the tens.  $12 \div 2 = \underline{\quad ? \quad}$  Write   ?   in tens place over the 2. Then divide the ones.  $4 \div 2 = \underline{\quad ? \quad}$  Write   ?   in ones place over the 4. The answer is   ?   chickens.

Check by multiplying.

Copy each example. Find the answer in two steps. Check the answer by multiplication.

1.  $2 \overline{)100}$     $2 \overline{)140}$     $2 \overline{)160}$     $2 \overline{)180}$     $5 \overline{)100}$     $7 \overline{)140}$     $6 \overline{)120}$

2.  $2 \overline{)182}$     $2 \overline{)128}$     $2 \overline{)146}$     $2 \overline{)164}$     $2 \overline{)106}$     $9 \overline{)189}$     $8 \overline{)168}$



$$\begin{array}{r} 60 \\ 2 \overline{)120} \end{array}$$

Check

$$\begin{array}{r} 60 \\ \times 2 \\ \hline 120 \end{array}$$

$$\begin{array}{r} 62 \\ 2 \overline{)124} \end{array}$$

Check

$$\begin{array}{r} 62 \\ \times 2 \\ \hline 124 \end{array}$$

## Dividing Cents and Dollars and Cents

Jack earned 84¢ one day helping at his uncle's store. If he saves half the money he earned, how much will he save?

Can you find  $\frac{1}{2}$  of 84¢ by dividing by 2?

Divide 84¢ as you would any two-place number. First divide the 8.  $8 \div 2 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  over 8. Then divide the 4.  $4 \div 2 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  over 4.

Now put in the cent sign, or the dollar sign and decimal point, to show that the answer means money.



$$\begin{array}{r} 42¢ \quad \$ .42 \\ 2 \overline{)84¢} \text{ or } 2 \overline{)\$.84} \end{array}$$

Check

$$\begin{array}{r} 42¢ \quad \$ .42 \\ \times 2 \quad \text{or} \quad \times 2 \\ \hline 84¢ \quad \$ .84 \end{array}$$

Copy each example, divide, and check.

1.  $2 \overline{)28¢}$        $2 \overline{)44¢}$        $2 \overline{)68¢}$        $2 \overline{)46¢}$        $2 \overline{)66¢}$
2.  $2 \overline{)\$.64}$        $2 \overline{)\$.62}$        $2 \overline{)\$.88}$        $2 \overline{)\$.22}$        $2 \overline{)\$.86}$

Betty had \$1.42. She decided to spend  $\frac{1}{2}$  of the money and save the other half. How much money in cents did she decide to spend?

To find the answer divide \$1.42 by 2. Are there enough dollars so that Betty can spend a dollar and also save one? Then think of \$1.42 as  $\underline{\quad ? \quad}$  dimes  $\underline{\quad ? \quad}$  pennies. Study the example at the left. Read the answer. Why must you use dollar signs and decimal points?

Copy each example and find the answer.

3.  $2 \overline{)\$1.82}$        $2 \overline{)\$1.44}$        $2 \overline{)\$1.68}$        $2 \overline{)\$1.86}$        $2 \overline{)\$1.62}$
4.  $9 \overline{)\$1.80}$        $8 \overline{)\$1.60}$        $7 \overline{)\$1.40}$        $6 \overline{)\$1.20}$        $5 \overline{)\$1.00}$

## Practice to Remember

Make a family of two multiplication facts and two division facts from each group of numbers in row 1.

1. 12, 6, 2      10, 5, 2      8, 4, 2      6, 3, 2

Copy each example and write the answer.

2.  $\begin{array}{r} 3 \\ \times 1 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 5 \\ \hline \end{array}$   $\begin{array}{r} 0 \\ \times 9 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ \times 9 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 9 \\ \hline \end{array}$   $\begin{array}{r} 8 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 6 \\ \hline \end{array}$   $\begin{array}{r} 4 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 7 \\ \hline \end{array}$

3.  $\begin{array}{r} 4 \\ \times 1 \\ \hline \end{array}$   $\begin{array}{r} 6 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 0 \\ \times 5 \\ \hline \end{array}$   $\begin{array}{r} 5 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ \times 6 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 8 \\ \hline \end{array}$   $\begin{array}{r} 3 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 9 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 7 \\ \times 2 \\ \hline \end{array}$

4.  $\begin{array}{r} 0 \\ \times 1 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 3 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ \times 3 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 4 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ \times 8 \\ \hline \end{array}$   $\begin{array}{r} 0 \\ \times 6 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 1 \\ \hline \end{array}$   $\begin{array}{r} 0 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ \times 5 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ \times 7 \\ \hline \end{array}$

5.  $5 \overline{)10}$     $9 \overline{)0}$     $2 \overline{)16}$     $9 \overline{)18}$     $6 \overline{)12}$     $2 \overline{)16}$     $2 \overline{)2}$     $2 \overline{)8}$

6.  $1 \overline{)0}$     $3 \overline{)3}$     $3 \overline{)6}$     $8 \overline{)16}$     $2 \overline{)12}$     $2 \overline{)10}$     $2 \overline{)18}$     $7 \overline{)14}$

Make "I Will Help You" cards for any facts hard to remember. Practice those facts with the cards.

Copy each example, multiply, and check.

7.  $\begin{array}{r} 85 \\ \times 1 \\ \hline \end{array}$   $\begin{array}{r} 31 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 14 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 21 \\ \times 1 \\ \hline \end{array}$   $\begin{array}{r} 43 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 20 \\ \times 5 \\ \hline \end{array}$   $\begin{array}{r} 21 \\ \times 9 \\ \hline \end{array}$   $\begin{array}{r} 53 \\ \times 2 \\ \hline \end{array}$

8.  $\begin{array}{r} \$ .93 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} \$ .20 \\ \times 7 \\ \hline \end{array}$   $\begin{array}{r} \$ .21 \\ \times 6 \\ \hline \end{array}$   $\begin{array}{r} \$ .20 \\ \times 8 \\ \hline \end{array}$   $\begin{array}{r} \$ .34 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} \$ .52 \\ \times 2 \\ \hline \end{array}$

Copy each example, divide, and check.

9.  $2 \overline{)62}$     $2 \overline{)86}$     $2 \overline{)28}$     $2 \overline{)42}$     $1 \overline{)27}$     $1 \overline{)53}$

10.  $2 \overline{)\$1.88}$     $2 \overline{)\$1.40}$     $5 \overline{)\$1.05}$     $2 \overline{)\$1.08}$     $2 \overline{)\$1.60}$

11. Find:  $\frac{1}{2}$  of 10; of 100; of 26; of \$.60; of \$1.64; of \$1.08.



## A Test on Problem Solving

Copy the problem numbers from 1 to 9. Beside each number write Add, Subtract, Multiply, or Divide, to show that you know what to do to solve the problem. Then solve the problems.

1. Tom had two pigs. One weighed 300 pounds. The other weighed 218 pounds. What was the difference in weight of the two pigs?
2. Ellen had 325 buttons in her collection. Alice had a collection of 278 buttons. How many more buttons did Ellen have than Alice?
3. Ted had 125 marbles. His brother gave him 275 marbles. How many marbles did Ted have then?
4. Kay bought 3 bags of peanuts at 21 cents a bag. How much money did Kay spend for the peanuts?
5. Ann had 68 paper dolls. She gave  $\frac{1}{2}$  of them to Sue. How many dolls would Sue get from Ann?
6. Joe bought papers for \$1.80 and sold them for \$2.25.

How much less did the papers cost Joe than he got selling them?

7. Jim had \$1.40 to spend for 2 presents. He wanted 2 presents that cost the same. What is the most he could spend for each present?
8. Ruth and Dick put their money together to buy a gift for their mother. Each gave \$.80. How much could they spend for the gift?
9. Bob spent \$2.50 for a fishing rod, \$.75 for a reel, and \$.65 for hooks and line. How much in all did he spend for these things?



## Finding What You Need to Study Again

If you need to study something again, the page numbers at the side tell you where to find it.

Copy each example and write the answer.

1.  $\begin{array}{r} 2 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 4 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 6 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 8 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 3 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 5 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 7 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 9 \\ \times 2 \\ \hline \end{array}$
2.  $\begin{array}{r} 2 \\ \times 1 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 3 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 5 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 7 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 9 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 4 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 6 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 8 \\ \hline \end{array}$
3.  $\begin{array}{r} 3 \\ \times 1 \\ \hline \end{array}$   $\begin{array}{r} 5 \\ \times 1 \\ \hline \end{array}$   $\begin{array}{r} 7 \\ \times 1 \\ \hline \end{array}$   $\begin{array}{r} 9 \\ \times 1 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ \times 4 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ \times 6 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ \times 8 \\ \hline \end{array}$
4.  $\begin{array}{r} 0 \\ \times 1 \\ \hline \end{array}$   $\begin{array}{r} 0 \\ \times 3 \\ \hline \end{array}$   $\begin{array}{r} 0 \\ \times 5 \\ \hline \end{array}$   $\begin{array}{r} 0 \\ \times 7 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 0 \\ \hline \end{array}$   $\begin{array}{r} 4 \\ \times 0 \\ \hline \end{array}$   $\begin{array}{r} 6 \\ \times 0 \\ \hline \end{array}$   $\begin{array}{r} 8 \\ \times 0 \\ \hline \end{array}$
5.  $\begin{array}{r} 20 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 30 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 40 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 60 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 41 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 13 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 24 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 21 \\ \times 2 \\ \hline \end{array}$
6.  $\begin{array}{r} 53 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 72 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 91 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 84 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} \$ .61 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} \$ .50 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} \$ .94 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} \$ .73 \\ \times 2 \\ \hline \end{array}$
7.  $16 \div 2 =$   $12 \div 2 =$   $18 \div 2 =$   $4 \div 2 =$
8.  $2 \overline{)18}$   $2 \overline{)14}$   $2 \overline{)10}$   $2 \overline{)6}$   $2 \overline{)2}$   $5 \overline{)10}$   $9 \overline{)18}$
9.  $\frac{1}{2}$  of 16 =  $\frac{1}{2}$  of 14 =  $\frac{1}{2}$  of 12 =  $\frac{1}{2}$  of 10 =
10.  $2 \overline{)0}$   $5 \overline{)0}$   $7 \overline{)0}$   $9 \overline{)0}$   $3 \overline{)3}$   $5 \overline{)5}$   $7 \overline{)7}$
11.  $9 \overline{)9}$   $1 \overline{)3}$   $1 \overline{)5}$   $1 \overline{)7}$   $1 \overline{)9}$   $1 \overline{)4}$   $1 \overline{)6}$
12.  $2 \overline{)40}$   $2 \overline{)60}$   $2 \overline{)80}$   $2 \overline{)120}$   $2 \overline{)140}$   $2 \overline{)180}$
13.  $2 \overline{)24}$   $2 \overline{)82}$   $2 \overline{)68}$   $2 \overline{)106}$   $2 \overline{)128}$   $2 \overline{)184}$
14.  $2 \overline{)\$ .46}$   $2 \overline{)\$ .88}$   $3 \overline{)\$ .63}$   $2 \overline{)\$ 1.48}$   $2 \overline{)\$ 1.86}$

Page  
234

234

238

239

241, 243

244, 245

251

252

253

262, 263

262

264, 265

264, 265

266

269





A



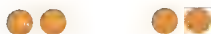
B



C



D



A

B



## Finding Out What You Know

### A. Word Meanings

1. Which picture, A, B, C, or D, shows a pair of dolls, no more, and no less?

2. Copy the addition facts shown in the next two rows.

$$8 - 2 = 6$$

$$8 \div 2 = 4$$

$$8 + 2 = 10$$

$$8 \times 2 = 16$$

$$\begin{array}{r} 8 \\ +2 \\ \hline 10 \end{array}$$

$$\begin{array}{r} 8 \\ \times 2 \\ \hline 16 \end{array}$$

$$\begin{array}{r} 8 \\ -2 \\ \hline 6 \end{array}$$

$$\begin{array}{r} 4 \\ 2 \overline{)8} \end{array}$$

3. Copy the subtraction facts shown in the two rows.

4. Copy the multiplication facts shown in the two rows.

5. Copy the division facts shown in the two rows.

### B. Arithmetic Understandings

1. The picture shows dots in two groups, A and B. Are the two groups equal in number?

2. Write a number fact that tells how many dots the two groups would make together.

3. Look at this row of dots. Think of making the row of dots into 4 equal groups. Write a division fact that tells how many dots would be in each of the equal groups.

4. Look at this row of dots. Think of making it into equal groups, 2 dots in each group. Write a division fact that tells how many such groups there would be.

5. Look at this row of dots. Think of taking the row of dots apart into two groups with 3 dots in one of the groups. Write a number fact that tells how many dots would be in the other group.

6. Look at this row of dots. Write a division fact that tells how many dots there are in  $\frac{1}{2}$  of the row. ● ● ● ● ● ● ● ● ● ●

7. Look at these equal groups of dots. Write a multiplication fact that tells how many dots there would be if all the groups were put together in one group. ● ●    ● ●    ● ●

### C. Number Facts and Skills

Copy each example and write the answer.

1.  $\begin{array}{r} 2 \\ \times 3 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ \times 1 \\ \hline \end{array}$   $\begin{array}{r} 4 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 0 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 7 \\ \hline \end{array}$   $\begin{array}{r} 5 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 9 \\ \hline \end{array}$   $\begin{array}{r} 8 \\ \times 1 \\ \hline \end{array}$   $\begin{array}{r} 1 \\ \times 6 \\ \hline \end{array}$

2.  $2 \overline{)16}$   $5 \overline{)10}$   $2 \overline{)12}$   $6 \overline{)0}$   $8 \overline{)8}$   $2 \overline{)14}$   $1 \overline{)1}$   $1 \overline{)6}$

3.  $\begin{array}{r} 20 \\ \times 3 \\ \hline \end{array}$   $\begin{array}{r} 14 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} \$ .23 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 20 \\ \times 8 \\ \hline \end{array}$   $\begin{array}{r} 81 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} \$ .64 \\ \times 2 \\ \hline \end{array}$

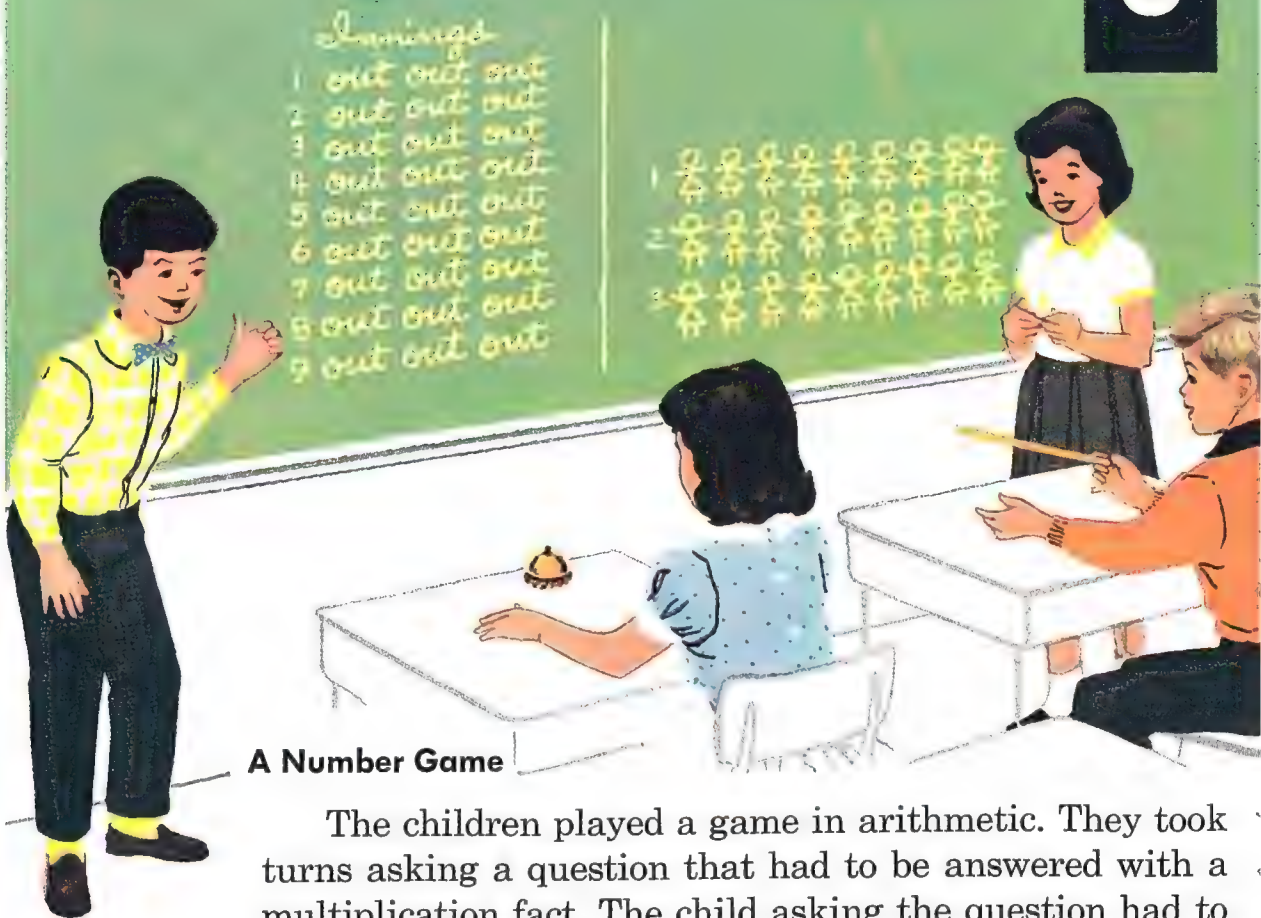
4.  $4 \overline{)80}$   $2 \overline{)64}$   $2 \overline{)\$ .28}$   $7 \overline{)140}$   $2 \overline{)168}$   $9 \overline{)\$ 1.89}$

### D. Problem Solving

- Ann bought her lunch at school. She paid 5¢ for milk, 10¢ for soup, 8¢ for a sandwich, and 6¢ for a big peach. How much did she spend for her lunch?
- Bob got his lunch at school each day he was there. His lunch cost \$.21 each day. How much money would he need to buy 5 lunches?
- Ellen bought two dresses. One dress cost \$9.00. The other cost \$5.98. What was the difference in cost of the two dresses?
- Ted always saved half of any money he earned. One week he earned \$1.80. How many cents should he have saved that week?







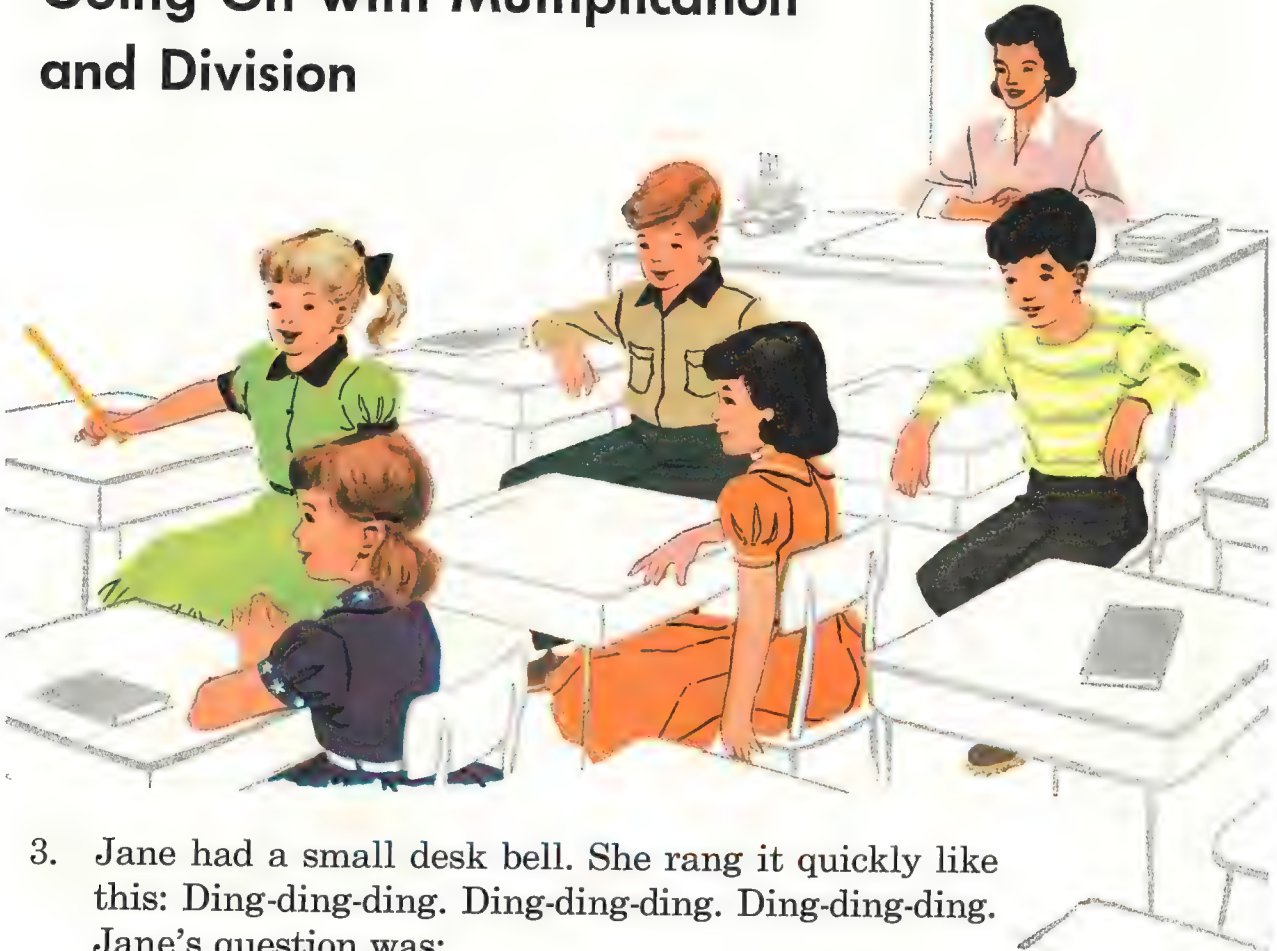
### A Number Game

The children played a game in arithmetic. They took turns asking a question that had to be answered with a multiplication fact. The child asking the question had to do something to help the others think of the answer. See if you can answer the question each one asked.

1. Jack wrote on the blackboard something about baseball. Then he asked, "How many Outs has the losing team in a nine-inning baseball game?"
2. Look at Betty's picture. She gave her question in verse. She said:

"Nine dolls on every line.  
How many dolls is three times nine?"

# Going On with Multiplication and Division



3. Jane had a small desk bell. She rang it quickly like this: Ding-ding-ding. Ding-ding-ding. Ding-ding-ding. Jane's question was:

"Counting by threes, who can tell  
How many times I rang the bell?"

4. Bob's question in verse was:

"Look at your ruler and answer me.  
Does the ruler end at four times three?"

5. Ruth followed Bob. She said:

"I know the answer. One question more.  
Does the ruler end at three times four?"

## Showing Facts on a Number Line

Mary made a *number line* like the picture. She used the line for help in learning multiplication facts and their meaning.



Mary wanted to learn the answer to 4 threes, or  $4 \times 3$ . She put her pencil at the left of the number line and drew a line over 3 spaces. She drew by threes until she had made 4 lines, ending at 12 on the number line. The number 12, where she stopped, is her answer:  $4 \times 3 = 12$ .

1. Dick used a number line as shown below. Write the fact that he showed with his number line.



2. Have someone help you to make a number line with numbers to 27. Use it to make sure of your multiplication facts and to show that you understand their meaning.

Study the following number facts. Practice saying and writing them until you know them.

3	3	3	3	3	3	3	3	3	3
$\times 0$	$\times 1$	$\times 2$	$\times 3$	$\times 4$	$\times 5$	$\times 6$	$\times 7$	$\times 8$	$\times 9$
<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
0	3	6	9	12	15	18	21	24	27
0	1	2	3	4	5	6	7	8	9
$\times 3$	$\times 3$	$\times 3$	$\times 3$	$\times 3$	$\times 3$	$\times 3$	$\times 3$	$\times 3$	$\times 3$
<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
0	3	6	9	12	15	18	21	24	27



## Add or Multiply?

How much is 4 threes? To answer the question you can add or multiply. In the examples shown, which way is longer?

Find each answer in rows 1, 2, and 3 by multiplying. Then check your answer by adding. Both answers should be the same.

Add	Multiply
3	
3	3
3	$\times 4$
3	<hr/>
12	12

1. 2 threes = ?      6 threes = ?      3 threes = ?

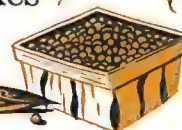
2. 7 threes = ?      3 fours = ?      3 eights = ?

3. 3 sixes = ?      3 sevens = ?      3 nines = ?

4. 9 threes = ?      5 threes = ?      8 threes = ?

The following are “put together” problems. Read each problem. Find the number that tells how many are in each of the equal groups. Then multiply it by the number of groups. Check your answer by adding.

5. Tony is helping his father. They are putting carrots in bunches, 6 small carrots to a bunch. How many small carrots will be needed for 3 bunches?
6. Tony puts 4 large carrots in each bunch. How many large carrots will he need for 3 bunches? 4 bunches?
7. The parsnips are large. Three parsnips make a bunch. Tony will need how many parsnips for 3 bunches? for 6 bunches?
8. Five small beets make a bunch. How many small beets make 3 bunches?
9. Each box of shelled peas weighs 4 ounces. Four boxes will weigh how many ounces in all?







## Questions about Multiplication

1. Is the answer to 3 times 5 the same as the answer to 5 times 3?
2. Does adding 5 threes give the same answer as multiplying  $5 \times 3$ ?

### Practice to Remember

Copy each example and write the answer.

- |    |  |  |  |  |  |  |  |  |  |
|----|--|--|--|--|--|--|--|--|--|
| 1. | $\begin{array}{r} 0 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 5 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 3 \\ \times 7 \\ \hline \end{array}$ | $\begin{array}{r} 2 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 0 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 2 \\ \times 9 \\ \hline \end{array}$ | $\begin{array}{r} 8 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 2 \\ \times 4 \\ \hline \end{array}$ | $\begin{array}{r} 3 \\ \times 5 \\ \hline \end{array}$ |
| 2. | $\begin{array}{r} 1 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 3 \\ \times 6 \\ \hline \end{array}$ | $\begin{array}{r} 0 \\ \times 9 \\ \hline \end{array}$ | $\begin{array}{r} 2 \\ \times 8 \\ \hline \end{array}$ | $\begin{array}{r} 3 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 0 \\ \times 4 \\ \hline \end{array}$ | $\begin{array}{r} 8 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 7 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 3 \\ \times 2 \\ \hline \end{array}$ |
| 3. | $\begin{array}{r} 2 \\ \times 7 \\ \hline \end{array}$ | $\begin{array}{r} 9 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 1 \\ \times 7 \\ \hline \end{array}$ | $\begin{array}{r} 0 \\ \times 6 \\ \hline \end{array}$ | $\begin{array}{r} 3 \\ \times 4 \\ \hline \end{array}$ | $\begin{array}{r} 5 \\ \times 1 \\ \hline \end{array}$ | $\begin{array}{r} 2 \\ \times 6 \\ \hline \end{array}$ | $\begin{array}{r} 0 \\ \times 7 \\ \hline \end{array}$ | $\begin{array}{r} 1 \\ \times 4 \\ \hline \end{array}$ |
| 4. | $\begin{array}{r} 9 \\ \times 1 \\ \hline \end{array}$ | $\begin{array}{r} 0 \\ \times 1 \\ \hline \end{array}$ | $\begin{array}{r} 7 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 1 \\ \times 5 \\ \hline \end{array}$ | $\begin{array}{r} 0 \\ \times 8 \\ \hline \end{array}$ | $\begin{array}{r} 4 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 2 \\ \times 5 \\ \hline \end{array}$ | $\begin{array}{r} 8 \\ \times 1 \\ \hline \end{array}$ | $\begin{array}{r} 6 \\ \times 2 \\ \hline \end{array}$ |
| 5. | $\begin{array}{r} 2 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 3 \\ \times 1 \\ \hline \end{array}$ | $\begin{array}{r} 1 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 6 \\ \times 1 \\ \hline \end{array}$ | $\begin{array}{r} 0 \\ \times 5 \\ \hline \end{array}$ | $\begin{array}{r} 1 \\ \times 9 \\ \hline \end{array}$ | $\begin{array}{r} 7 \\ \times 1 \\ \hline \end{array}$ | $\begin{array}{r} 1 \\ \times 1 \\ \hline \end{array}$ | $\begin{array}{r} 1 \\ \times 8 \\ \hline \end{array}$ |
| 6. | $\begin{array}{r} 5 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 3 \\ \times 8 \\ \hline \end{array}$ | $\begin{array}{r} 1 \\ \times 6 \\ \hline \end{array}$ | $\begin{array}{r} 9 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 4 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 2 \\ \times 1 \\ \hline \end{array}$ | $\begin{array}{r} 6 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 3 \\ \times 9 \\ \hline \end{array}$ | $\begin{array}{r} 4 \\ \times 1 \\ \hline \end{array}$ |

Make "I Will Help You" cards for any facts you find hard to remember. Practice with the cards until you feel sure you know each fact.

Copy and add down. Check by adding up.

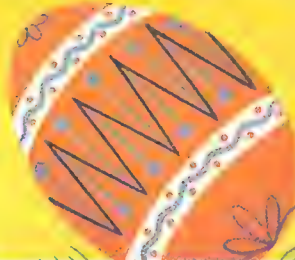
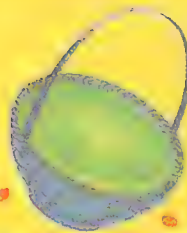
- |    |   |   |   |   |   |   |  |  |
|----|---|---|---|---|---|---|--|--|
| 7. | $\begin{array}{r} 57 \\ 79 \\ 78 \\ 97 \\ \hline \end{array}$ | $\begin{array}{r} 79 \\ 96 \\ 96 \\ 69 \\ \hline \end{array}$ | $\begin{array}{r} 66 \\ 36 \\ 68 \\ 46 \\ \hline \end{array}$ | $\begin{array}{r} 49 \\ 38 \\ 73 \\ 45 \\ \hline \end{array}$ | $\begin{array}{r} 24 \\ 56 \\ 28 \\ 72 \\ \hline \end{array}$ | $\begin{array}{r} 16 \\ 35 \\ 44 \\ 25 \\ \hline \end{array}$ | $\begin{array}{r} \$ .34 \\ .04 \\ .31 \\ .06 \\ \hline \end{array}$ | $\begin{array}{r} \$ .95 \\ .34 \\ .20 \\ .51 \\ \hline \end{array}$ |
|----|---|---|---|---|---|---|--|--|

## Easter Baskets

USING 3 IN MULTIPLICATION

The children are glad that Easter is coming. They will have fun filling Easter baskets.

1. Joan is at the store looking at baskets and things to put in them. Little baskets cost 10¢ each. How much will 3 baskets cost? Think: Three baskets cost 3 times as much as 1 basket.
2. Joan sees some small wool chickens. They are pinned on cards, 4 chickens on a card. If she buys 3 cards, how many chickens will she get? Think: She will get  $3 \times 4$  chickens.
3. If each card of chickens costs 5¢, how much will the 3 cards cost? Think:  $3 \times 5¢$  is how much?
4. Bob is looking for things for Easter baskets. He sees some candy rabbits. They are 6¢ each. How much will 3 candy rabbits cost? Think: Three rabbits will cost  $3 \times 6¢$ .
5. Joan would like to put 3 candy eggs in each basket. How many eggs will she need for 3 baskets? Think: 3 times 3 eggs equal how many?
6. Bob looks at some chocolate bars. They are sold in packages, 2 bars to a package. If Bob buys 3 packages, how many chocolate bars will he get? Think:  $3 \times 2$  bars = how many bars?



## Buying Things for a Party

CHECKING MULTIPLICATION BY ADDITION

Ellen and Jane are buying things for a party.

- Some small cakes come 12 in a package. How many cakes are there in 3 of these packages?

Ellen thinks, "If one package has 12 cakes, 3 packages will have 3 times 12 cakes."

Ellen multiplies to find the answer. Jane adds to find the answer. Both girls get the same answer, so they are sure the right answer is   ?   cakes.

- Jane buys 3 dozen mints. The price is 20¢ a dozen. How much does she pay for the mints? Find the answer by multiplication. Check by addition.
- Ellen buys 6 favors at 21¢ each. How much do they cost? The example is done at the side. Check it by addition. Use the dollar sign and decimal point.

Copy each example, multiply, and check by adding.

Ellen	Jane
12	12
$\times 3$	$+ 12$

\$ .21
$\times 6$
$\$1.26$

- |    |   |   |   |   |   |   |   |   |
|----|---|---|---|---|---|---|---|---|
| 4. | $\begin{array}{r} 10 \\ \times 3 \\ \hline \end{array}$     | $\begin{array}{r} 11 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 22 \\ \times 3 \\ \hline \end{array}$     | $\begin{array}{r} 33 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 23 \\ \times 3 \\ \hline \end{array}$     | $\begin{array}{r} 13 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 41 \\ \times 3 \\ \hline \end{array}$     | $\begin{array}{r} 42 \\ \times 3 \\ \hline \end{array}$     |
| 5. | $\begin{array}{r} 31 \\ \times 3 \\ \hline \end{array}$     | $\begin{array}{r} 32 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 12 \\ \times 4 \\ \hline \end{array}$     | $\begin{array}{r} 43 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 22 \\ \times 4 \\ \hline \end{array}$     | $\begin{array}{r} 11 \\ \times 4 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ \times 4 \\ \hline \end{array}$     | $\begin{array}{r} 21 \\ \times 4 \\ \hline \end{array}$     |
| 6. | $\begin{array}{r} 20 \\ \times 3 \\ \hline \end{array}$     | $\begin{array}{r} 30 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 40 \\ \times 3 \\ \hline \end{array}$     | $\begin{array}{r} 50 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 60 \\ \times 3 \\ \hline \end{array}$     | $\begin{array}{r} 51 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 52 \\ \times 3 \\ \hline \end{array}$     | $\begin{array}{r} 62 \\ \times 3 \\ \hline \end{array}$     |
| 7. | $\begin{array}{r} 53 \\ \times 3 \\ \hline \end{array}$     | $\begin{array}{r} 63 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 30 \\ \times 4 \\ \hline \end{array}$     | $\begin{array}{r} 31 \\ \times 4 \\ \hline \end{array}$ | $\begin{array}{r} 32 \\ \times 4 \\ \hline \end{array}$     | $\begin{array}{r} 31 \\ \times 6 \\ \hline \end{array}$ | $\begin{array}{r} 30 \\ \times 6 \\ \hline \end{array}$     | $\begin{array}{r} 20 \\ \times 4 \\ \hline \end{array}$     |
| 8. | $\begin{array}{r} 71 \\ \times 3 \\ \hline \end{array}$     | $\begin{array}{r} 82 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 90 \\ \times 3 \\ \hline \end{array}$     | $\begin{array}{r} 30 \\ \times 7 \\ \hline \end{array}$ | $\begin{array}{r} 31 \\ \times 8 \\ \hline \end{array}$     | $\begin{array}{r} 31 \\ \times 9 \\ \hline \end{array}$ | $\begin{array}{r} 31 \\ \times 5 \\ \hline \end{array}$     | $\begin{array}{r} 61 \\ \times 3 \\ \hline \end{array}$     |
| 9. | $\begin{array}{r} \$ .21 \\ \times 3 \\ \hline \end{array}$ |   | $\begin{array}{r} \$ .12 \\ \times 4 \\ \hline \end{array}$ |   | $\begin{array}{r} \$ .43 \\ \times 3 \\ \hline \end{array}$ |   | $\begin{array}{r} \$ .30 \\ \times 5 \\ \hline \end{array}$ | $\begin{array}{r} \$ .73 \\ \times 2 \\ \hline \end{array}$ |



## Multiplication Problems with Three-Place Answers

Solve each problem. Be sure each answer makes sense.

1. Mary bought 3 pounds of candy at \$.80 a pound. How much did Mary's candy cost her?
2. The children marched in 4 lines. In each line were 32 children. How many children marched?
3. There are 30 days in each of these months: April, June, September, and November. How many days in all are there in the 4 months?
4. How much will 6 turkeys weigh if each turkey weighs 21 pounds?
5. If a movie ticket costs \$.30, how much will 6 movie tickets cost?
6. In the music room, there are 8 rows of chairs, with 21 chairs in each row. How many chairs are there in the music room?
7. There are 5 rows of berry plants in the garden. Each row has 30 plants. How many berry plants are there in the garden?
8. Jane bought 3 yards of cloth at \$.51 a yard. How much in all did the cloth cost Jane?
9. A lake boat could take 70 people on each trip across the lake. How many people could the boat take across the lake in 2 trips?





# Practice to Remember

Copy and add down. Check by adding up.

$$\begin{array}{r} 1. \quad \begin{array}{r} 26 \\ 54 \\ 39 \\ 68 \\ \hline \end{array} \quad \begin{array}{r} 37 \\ 65 \\ 48 \\ 75 \\ \hline \end{array} \quad \begin{array}{r} 73 \\ 49 \\ 60 \\ 79 \\ \hline \end{array} \quad \begin{array}{r} 36 \\ 29 \\ 28 \\ 87 \\ \hline \end{array} \quad \begin{array}{r} 59 \\ 85 \\ 92 \\ 67 \\ \hline \end{array} \quad \begin{array}{r} 58 \\ 76 \\ 59 \\ 48 \\ \hline \end{array} \quad \begin{array}{r} 47 \\ 87 \\ 34 \\ 99 \\ \hline \end{array} \quad \begin{array}{r} 18 \\ 25 \\ 44 \\ 96 \\ \hline \end{array} \end{array}$$

$$\begin{array}{r} 2. \quad \begin{array}{r} 389 \\ 126 \\ 193 \\ \hline \end{array} \quad \begin{array}{r} 160 \\ 437 \\ 334 \\ \hline \end{array} \quad \begin{array}{r} 156 \\ 165 \\ 197 \\ \hline \end{array} \quad \begin{array}{r} 534 \\ 178 \\ 196 \\ \hline \end{array} \quad \begin{array}{r} 278 \\ 248 \\ 180 \\ \hline \end{array} \quad \begin{array}{r} 468 \\ 223 \\ 112 \\ \hline \end{array} \end{array}$$

Copy and subtract. Check by adding.

$$\begin{array}{r} 3. \quad \begin{array}{r} 357 \\ 168 \\ \hline \end{array} \quad \begin{array}{r} 530 \\ 297 \\ \hline \end{array} \quad \begin{array}{r} 645 \\ 256 \\ \hline \end{array} \quad \begin{array}{r} 826 \\ 439 \\ \hline \end{array} \quad \begin{array}{r} 942 \\ 584 \\ \hline \end{array} \quad \begin{array}{r} 778 \\ 479 \\ \hline \end{array} \end{array}$$

$$\begin{array}{r} 4. \quad \begin{array}{r} 855 \\ 257 \\ \hline \end{array} \quad \begin{array}{r} 634 \\ 389 \\ \hline \end{array} \quad \begin{array}{r} 941 \\ 372 \\ \hline \end{array} \quad \begin{array}{r} 745 \\ 598 \\ \hline \end{array} \quad \begin{array}{r} 564 \\ 197 \\ \hline \end{array} \quad \begin{array}{r} 936 \\ 478 \\ \hline \end{array} \end{array}$$

$$\begin{array}{r} 5. \quad \begin{array}{r} 720 \\ 348 \\ \hline \end{array} \quad \begin{array}{r} 611 \\ 467 \\ \hline \end{array} \quad \begin{array}{r} 712 \\ 255 \\ \hline \end{array} \quad \begin{array}{r} 802 \\ 536 \\ \hline \end{array} \quad \begin{array}{r} 904 \\ 258 \\ \hline \end{array} \quad \begin{array}{r} 801 \\ 376 \\ \hline \end{array} \end{array}$$

$$\begin{array}{r} 6. \quad \begin{array}{r} 400 \\ 149 \\ \hline \end{array} \quad \begin{array}{r} 900 \\ 664 \\ \hline \end{array} \quad \begin{array}{r} 700 \\ 183 \\ \hline \end{array} \quad \begin{array}{r} 941 \\ 845 \\ \hline \end{array} \quad \begin{array}{r} 783 \\ 696 \\ \hline \end{array} \quad \begin{array}{r} 621 \\ 598 \\ \hline \end{array} \end{array}$$

$$\begin{array}{r} 7. \quad \begin{array}{r} \$6.12 \\ 1.23 \\ \hline \end{array} \quad \begin{array}{r} \$4.00 \\ 2.91 \\ \hline \end{array} \quad \begin{array}{r} \$5.00 \\ 3.05 \\ \hline \end{array} \quad \begin{array}{r} \$7.35 \\ 1.26 \\ \hline \end{array} \quad \begin{array}{r} \$9.16 \\ 2.09 \\ \hline \end{array} \quad \begin{array}{r} \$4.84 \\ 4.78 \\ \hline \end{array} \end{array}$$

Copy and multiply. Check by adding.

$$\begin{array}{r} 8. \quad \begin{array}{r} 4 \\ 2 \\ \hline \end{array} \quad \begin{array}{r} 2 \\ 5 \\ \hline \end{array} \quad \begin{array}{r} 3 \\ 8 \\ \hline \end{array} \quad \begin{array}{r} 3 \\ 4 \\ \hline \end{array} \quad \begin{array}{r} 2 \\ 9 \\ \hline \end{array} \quad \begin{array}{r} 9 \\ 3 \\ \hline \end{array} \quad \begin{array}{r} 3 \\ 5 \\ \hline \end{array} \quad \begin{array}{r} 2 \\ 6 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ 2 \\ \hline \end{array} \quad \begin{array}{r} 7 \\ 3 \\ \hline \end{array} \quad \begin{array}{r} 3 \\ 9 \\ \hline \end{array} \quad \begin{array}{r} 8 \\ 2 \\ \hline \end{array} \end{array}$$

$$\begin{array}{r} 9. \quad \begin{array}{r} 23 \\ 3 \\ \hline \end{array} \quad \begin{array}{r} 13 \\ 2 \\ \hline \end{array} \quad \begin{array}{r} 20 \\ 4 \\ \hline \end{array} \quad \begin{array}{r} 10 \\ 5 \\ \hline \end{array} \quad \begin{array}{r} 31 \\ 6 \\ \hline \end{array} \quad \begin{array}{r} 21 \\ 7 \\ \hline \end{array} \quad \begin{array}{r} 81 \\ 3 \\ \hline \end{array} \quad \begin{array}{r} 54 \\ 2 \\ \hline \end{array} \end{array}$$

$$\begin{array}{r} 10. \quad \begin{array}{r} 51 \\ 3 \\ \hline \end{array} \quad \begin{array}{r} 10 \\ 9 \\ \hline \end{array} \quad \begin{array}{r} 30 \\ 7 \\ \hline \end{array} \quad \begin{array}{r} 72 \\ 2 \\ \hline \end{array} \quad \begin{array}{r} 60 \\ 3 \\ \hline \end{array} \quad \begin{array}{r} 31 \\ 4 \\ \hline \end{array} \quad \begin{array}{r} 30 \\ 8 \\ \hline \end{array} \quad \begin{array}{r} 80 \\ 2 \\ \hline \end{array} \end{array}$$

## How Many Threes?

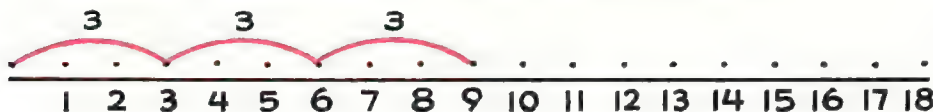
DIVISION FACTS OF 3

1. Alice has bought a dozen balloons. She ties them in groups of 3. How many groups of 3 can she make from the 12 balloons?

Study the picture.  
Then copy this example  
and write the answer.  $12 \div 3 = \underline{\quad ? \quad}$

2. Make 6 dots on a piece of paper and draw rings around groups of 3 dots. Do this in as many different ways as you can. How many groups of 3 does 6 dots always make? Copy this example and write the answer.  $6 \div 3 = \underline{\quad ? \quad}$

3. Ted made a number line like the one below.



He put his pencil on 9, counted back 3 spaces, and drew a line over the number line to 6. He drew lines by 3's until he came to the left end of the number line. How many lines did he draw? What is the answer to this example?  $9 \div 3 = \underline{\quad ? \quad}$

4. Make a number line with numbers to 27. Start at each of these numbers: 27; 24; 21; 18; 15; 12. Count back by 3's and find the answer to:  $27 \div 3$ ;  $24 \div 3$ ;  $21 \div 3$ ;  $18 \div 3$ ;  $15 \div 3$ ;  $12 \div 3$ .
5. Practice saying and writing these facts.

$$\begin{array}{r} 1 \\ 3 \overline{)3} \end{array} \quad \begin{array}{r} 2 \\ 3 \overline{)6} \end{array} \quad \begin{array}{r} 3 \\ 3 \overline{)9} \end{array} \quad \begin{array}{r} 4 \\ 3 \overline{)12} \end{array} \quad \begin{array}{r} 5 \\ 3 \overline{)15} \end{array} \quad \begin{array}{r} 6 \\ 3 \overline{)18} \end{array} \quad \begin{array}{r} 7 \\ 3 \overline{)21} \end{array} \quad \begin{array}{r} 8 \\ 3 \overline{)24} \end{array} \quad \begin{array}{r} 9 \\ 3 \overline{)27} \end{array}$$



## Division Facts That Go Together



This picture shows 6 eggs divided into groups of 3. How many groups of 3 are there?  $6 \div 3 = \underline{\quad ? \quad}$



This picture shows 6 eggs divided into groups of 2. How many groups of 2 are there?  $6 \div 2 = \underline{\quad ? \quad}$

The two facts shown by the pictures go together. If you know  $6 \div 3 = 2$ , then you also know  $6 \div 2 = 3$ . How are they alike? How are they different?

1. Draw 12 small circles. Divide them into groups of 3. Count the number of groups.  $12 \div 3 = \underline{\quad ? \quad}$  Now draw 12 more circles and divide them into groups of 4. Count the number of groups.  $12 \div 4 = \underline{\quad ? \quad}$  Why do  $12 \div 3 = 4$  and  $12 \div 4 = 3$  go together?
2. Draw pictures and find the answers to the two examples in each box. Do they go together? Why?

$3 \overline{)18}$	$6 \overline{)18}$
--------------------	--------------------

$3 \overline{)15}$	$5 \overline{)15}$
--------------------	--------------------

$3 \overline{)3}$	$1 \overline{)3}$
-------------------	-------------------

How are these two rows of facts alike? How are they different? Practice saying and writing them until you know them.

$3 \overline{)13}$	$2 \overline{)6}$	$3 \overline{)9}$	$4 \overline{)12}$	$5 \overline{)15}$	$6 \overline{)18}$	$7 \overline{)21}$	$8 \overline{)24}$	$9 \overline{)27}$
--------------------	-------------------	-------------------	--------------------	--------------------	--------------------	--------------------	--------------------	--------------------

$1 \overline{)3}$	$2 \overline{)6}$	$3 \overline{)9}$	$3 \overline{)12}$	$3 \overline{)15}$	$3 \overline{)18}$	$3 \overline{)21}$	$3 \overline{)24}$	$3 \overline{)27}$
-------------------	-------------------	-------------------	--------------------	--------------------	--------------------	--------------------	--------------------	--------------------

Copy each example and write the answer.

3.  $2 \overline{)10}$     $5 \overline{)10}$     $2 \overline{)14}$     $7 \overline{)14}$     $2 \overline{)18}$     $9 \overline{)18}$     $3 \overline{)21}$

4.  $7 \overline{)21}$     $3 \overline{)24}$     $8 \overline{)24}$     $3 \overline{)27}$     $9 \overline{)27}$     $3 \overline{)18}$     $6 \overline{)18}$

# Making Cookies

MEANING OF ONE THIRD

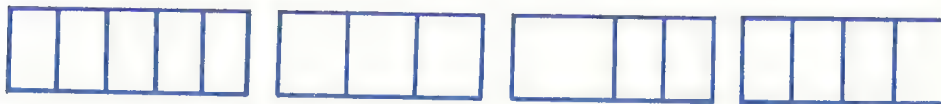
Ann made three pans of cookies for her Brownie troop. She divided the dough into 3 equal parts. She divided it into *thirds*. She used one third for each pan of cookies.



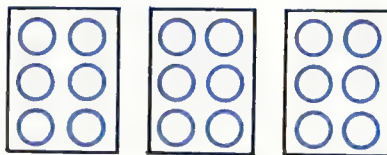
One *third* written with figures is  $\frac{1}{3}$ .

$\frac{1}{3}$  means  $\frac{1 \text{ of the}}{3 \text{ equal parts}}$  of the whole

1. One of the pictures below is divided into thirds. Copy that picture. On your copy write  $\frac{1}{3}$  on each of the 3 equal parts.



2. Ann made 18 cookies in all. She baked  $\frac{1}{3}$  of them in each pan. How many did she bake in each pan?



The picture shows you the answer.  $\frac{1}{3}$  of 18 means 18 divided by 3.  $18 \div 3 = \underline{\quad ? \quad}$

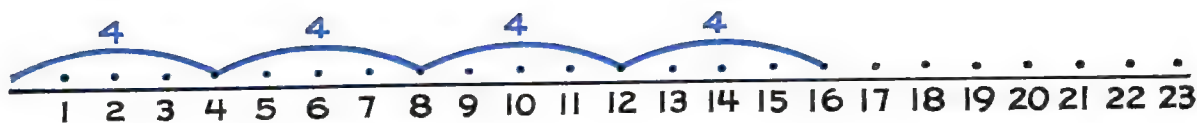
$\frac{1}{3}$  of 18 =  $\frac{1 \text{ of the}}{3 \text{ equal parts}}$  of 18

Copy each example. Say what the example means. Then write the answer.

3.  $\frac{1}{3}$  of 3 =       $\frac{1}{3}$  of 9 =       $\frac{1}{3}$  of 15 =       $\frac{1}{3}$  of 6 =
4.  $\frac{1}{3}$  of 12 =       $\frac{1}{3}$  of 27 =       $\frac{1}{3}$  of 24 =       $\frac{1}{3}$  of 21 =

To find one third of a number, divide it by 3.





### Discovering New Multiplication Facts

If you know how to count on a number line by twos, threes, fours, and other numbers, you can discover new multiplication facts for yourself. The longer the number line, the more facts you can discover.

4
$\times 4$
16

The number line above goes from 0 to 45. Starting at 0 and counting spaces by fours, you can see one new fact. The new fact is 4 fours = 16, or  $4 \times 4 = 16$ .

Copy the number line and use it to find the answers to each of these multiplications:

1.  $5 \times 4$        $6 \times 4$        $7 \times 4$        $8 \times 4$        $9 \times 4$

Study the following multiplication facts. Practice saying and writing them until you know them.

$\begin{array}{r} 4 \\ \times 0 \\ \hline 0 \end{array}$	$\begin{array}{r} 4 \\ \times 1 \\ \hline 4 \end{array}$	$\begin{array}{r} 4 \\ \times 2 \\ \hline 8 \end{array}$	$\begin{array}{r} 4 \\ \times 3 \\ \hline 12 \end{array}$	$\begin{array}{r} 4 \\ \times 4 \\ \hline 16 \end{array}$	$\begin{array}{r} 4 \\ \times 5 \\ \hline 20 \end{array}$	$\begin{array}{r} 4 \\ \times 6 \\ \hline 24 \end{array}$	$\begin{array}{r} 4 \\ \times 7 \\ \hline 28 \end{array}$	$\begin{array}{r} 4 \\ \times 8 \\ \hline 32 \end{array}$	$\begin{array}{r} 4 \\ \times 9 \\ \hline 36 \end{array}$
$\begin{array}{r} 0 \\ \times 4 \\ \hline 0 \end{array}$	$\begin{array}{r} 1 \\ \times 4 \\ \hline 4 \end{array}$	$\begin{array}{r} 2 \\ \times 4 \\ \hline 8 \end{array}$	$\begin{array}{r} 3 \\ \times 4 \\ \hline 12 \end{array}$	$\begin{array}{r} 4 \\ \times 4 \\ \hline 16 \end{array}$	$\begin{array}{r} 5 \\ \times 4 \\ \hline 20 \end{array}$	$\begin{array}{r} 6 \\ \times 4 \\ \hline 24 \end{array}$	$\begin{array}{r} 7 \\ \times 4 \\ \hline 28 \end{array}$	$\begin{array}{r} 8 \\ \times 4 \\ \hline 32 \end{array}$	$\begin{array}{r} 9 \\ \times 4 \\ \hline 36 \end{array}$

How are the two rows of facts alike? How are they different? In both rows of facts each answer is how many more than the answer just before it?

- ★ 2. Try counting by fives on your number line. See how many new multiplication facts you can discover.
- ★ 3. Write the new multiplication facts you can discover by counting forward by 6's; by 7's; by 8's; by 9's.

24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45

## Discovering New Division Facts

If you count backward on the number line, you can discover new division facts for yourself.

Starting at 16 and counting spaces by 4 back to 0, you can see 4 fours in 16, or  $16 \div 4 = 4$ .

$$\begin{array}{r} 4 \\ 4 \overline{)16} \end{array}$$

Use your number line to find the answers to each of these divisions:

1.  $20 \div 4$        $24 \div 4$        $28 \div 4$        $32 \div 4$        $36 \div 4$

Study the following division facts. Practice saying and writing them until you know them.

$$\begin{array}{l} 1 \\ 4 \overline{)4} \end{array} \quad \begin{array}{l} 2 \\ 4 \overline{)8} \end{array} \quad \begin{array}{l} 3 \\ 4 \overline{)12} \end{array} \quad \begin{array}{l} 4 \\ 4 \overline{)16} \end{array} \quad \begin{array}{l} 5 \\ 4 \overline{)20} \end{array} \quad \begin{array}{l} 6 \\ 4 \overline{)24} \end{array} \quad \begin{array}{l} 7 \\ 4 \overline{)28} \end{array} \quad \begin{array}{l} 8 \\ 4 \overline{)32} \end{array} \quad \begin{array}{l} 9 \\ 4 \overline{)36} \end{array}$$

$$\begin{array}{l} 4 \\ 1 \overline{)4} \end{array} \quad \begin{array}{l} 4 \\ 2 \overline{)8} \end{array} \quad \begin{array}{l} 4 \\ 3 \overline{)12} \end{array} \quad \begin{array}{l} 4 \\ 4 \overline{)16} \end{array} \quad \begin{array}{l} 4 \\ 5 \overline{)20} \end{array} \quad \begin{array}{l} 4 \\ 6 \overline{)24} \end{array} \quad \begin{array}{l} 4 \\ 7 \overline{)28} \end{array} \quad \begin{array}{l} 4 \\ 8 \overline{)32} \end{array} \quad \begin{array}{l} 4 \\ 9 \overline{)36} \end{array}$$

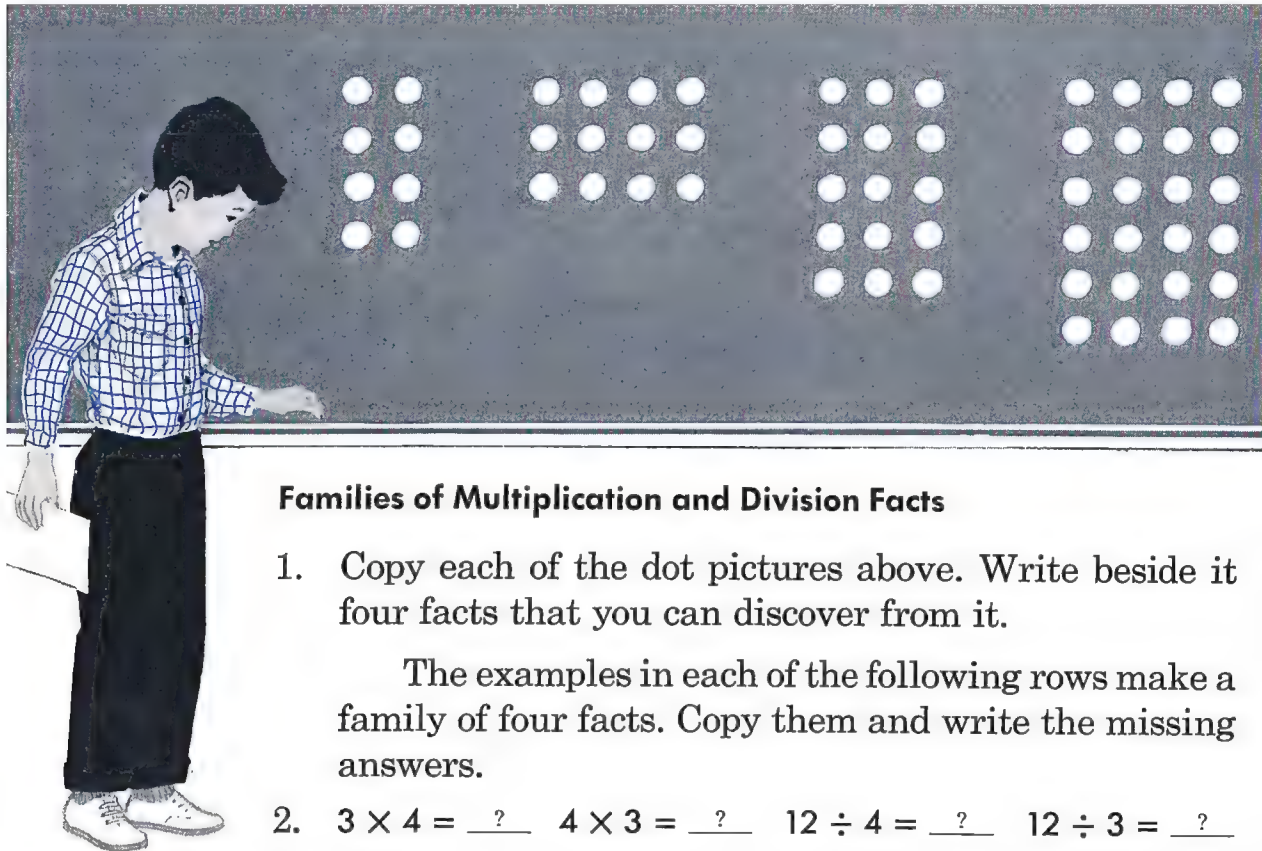
Copy the facts without the answers. Then close your book and see if you can write the answers.

2. If  $20 \div 4 = 5$ ,  $20 \div 5 = \underline{\quad ? \quad}$       If  $24 \div 4 = 6$ ,  $24 \div 6 = \underline{\quad ? \quad}$

3. If  $28 \div 4 = 7$ ,  $28 \div 7 = \underline{\quad ? \quad}$       If  $32 \div 4 = 8$ ,  $32 \div 8 = \underline{\quad ? \quad}$

4. Try counting backward by fives on your number line. Write the new division facts you discovered.

5. Write the new division facts you can discover by starting at 42 and counting backward by sixes and by sevens; at 40 and counting backward by eights; at 45 and counting backward by nines.



### Families of Multiplication and Division Facts

1. Copy each of the dot pictures above. Write beside it four facts that you can discover from it.

The examples in each of the following rows make a family of four facts. Copy them and write the missing answers.

2.  $3 \times 4 = \underline{\quad ? \quad}$     $4 \times 3 = \underline{\quad ? \quad}$     $12 \div 4 = \underline{\quad ? \quad}$     $12 \div 3 = \underline{\quad ? \quad}$
3.  $7 \times 3 = \underline{\quad ? \quad}$     $3 \times 7 = \underline{\quad ? \quad}$     $21 \div 3 = \underline{\quad ? \quad}$     $21 \div 7 = \underline{\quad ? \quad}$
4.  $8 \times 4 = \underline{\quad ? \quad}$     $4 \times 8 = \underline{\quad ? \quad}$     $32 \div 4 = \underline{\quad ? \quad}$     $32 \div 8 = \underline{\quad ? \quad}$
5.  $9 \times 4 = \underline{\quad ? \quad}$     $4 \times 9 = \underline{\quad ? \quad}$     $36 \div 4 = \underline{\quad ? \quad}$     $36 \div 9 = \underline{\quad ? \quad}$

Copy each of the facts below. Then write the three other facts that belong in its family.

6.  $9 \times 3 = 27$     $5 \times 4 = 20$     $8 \times 3 = 24$     $7 \times 4 = 28$

Make a family of two multiplication and two division facts from each of these groups of numbers:

7. 5, 3, 15      6, 4, 24      18, 3, 6      3, 8, 24
8. Make a family of multiplication and division facts from each group of numbers below. How many facts are in each of these families? Why?

3, 3, 9

4, 4, 16

## Dividing Larger Numbers

Read each problem. Tell why it is solved by division. Explain how each problem is solved.

Mary, Sue, and Ellen wish to share 30 paper dolls equally. How many will each of the 3 girls have?

You can think of 30 as 3 tens, or you can divide 30 in two steps. Check by multiplying.

Suppose there had been 36 paper dolls for the 3 girls to share. Each girl would have how many?

Divide 36 by 3 in two steps and check.

Three girls cut out 123 paper dolls. If they shared the work equally, how many did each girl cut out?

Think of 123 as 12 tens, 3 ones. Divide and check.

Judy has \$1.80. She is going to share it equally with Kay and Patty. How much will each of the 3 girls have?

Think of \$1.80 as 180 cents. Then think of 180 as 18 tens, 0 ones, and divide. Put a dollar sign and decimal point in the answer. Why? Check by multiplying.

Copy each example, divide, and check.

$$1. \quad 5 \overline{)50} \quad 7 \overline{)70} \quad 4 \overline{)84} \quad 8 \overline{)80} \quad 3 \overline{)39} \quad 6 \overline{)66}$$

$$2. \quad 3 \overline{)93} \quad 4 \overline{)48} \quad 2 \overline{)24} \quad 5 \overline{)55} \quad 3 \overline{)60} \quad 9 \overline{)99}$$

$$3. \quad 3 \overline{)159} \quad 4 \overline{)124} \quad 3 \overline{)186} \quad 6 \overline{)186} \quad 2 \overline{)164}$$

$$4. \quad 5 \overline{)155} \quad 9 \overline{)270} \quad 2 \overline{)188} \quad 3 \overline{)249} \quad 8 \overline{)248}$$

$$5. \quad 3 \overline{)\$ .99} \quad 3 \overline{)\$ 1.53} \quad 4 \overline{)\$ .28} \quad 2 \overline{)\$ 1.46} \quad 3 \overline{)\$ 2.43}$$

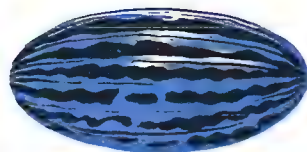
$$\begin{array}{r} 1 \text{ ten, or } 10 \\ 3 \overline{)30} \\ 10 \\ 3 \overline{)30} \\ \text{Check} \\ 10 \\ \times 3 \\ \hline 30 \end{array}$$

$$\begin{array}{r} 12 \\ 3 \overline{)36} \\ \text{Check} \\ 12 \\ \times 3 \\ \hline 36 \end{array}$$

$$\begin{array}{r} 41 \\ 3 \overline{)123} \\ \text{Check} \\ 41 \\ \times 3 \\ \hline 123 \end{array}$$

$$\begin{array}{r} \$ .60 \\ 3 \overline{)\$ 1.80} \\ \text{Check} \\ \$ .60 \\ \times 3 \\ \hline \$ 1.80 \end{array}$$





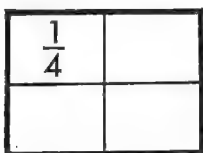
### Sharing among Four

Jack and three of his friends had a slice of watermelon. Jack divided the slice of watermelon into 4 equal parts. He divided the slice into *fourths*.

Each of the 4 boys had one of the 4 equal parts. Each boy had *one fourth* of the slice. See the pictures.

One fourth has another name, *one quarter*. You can write one fourth, or one quarter, this way:  $\frac{1}{4}$ .

$\frac{1}{4}$  means  $\frac{1 \text{ of the}}{4 \text{ equal parts}}$  of the whole



1. Fold a paper to show fourths, or quarters. Write  $\frac{1}{4}$  on each of the 4 equal parts.
2. Jack and his three friends shared 12 chocolates. Each of the 4 boys took  $\frac{1}{4}$  of the chocolates. How many did each boy take?



Jack's picture shows you the answer.  $\frac{1}{4}$  of 12 means 12 divided by 4.  $12 \div 4 = \underline{\quad ? \quad}$

$\frac{1}{4}$  of 12 =  $\frac{1 \text{ of the}}{4 \text{ equal parts}}$  of 12

Copy each example. Say what the example means. Then write the answer.

3.  $\frac{1}{4}$  of 4 =       $\frac{1}{4}$  of 8 =       $\frac{1}{4}$  of 16 =       $\frac{1}{4}$  of 40 =
4.  $\frac{1}{4}$  of 80 =       $\frac{1}{4}$  of 48 =       $\frac{1}{4}$  of 84 =       $\frac{1}{4}$  of 120 =

To find one fourth of a number, divide it by 4.

# Practice to Remember

Copy each example, write the answer, and check.

$$\begin{array}{r} 1. \quad 343 \\ 189 \\ +289 \\ \hline \end{array} \quad \begin{array}{r} 589 \\ 174 \\ +98 \\ \hline \end{array} \quad \begin{array}{r} 768 \\ 57 \\ +78 \\ \hline \end{array} \quad \begin{array}{r} 326 \\ 99 \\ +469 \\ \hline \end{array} \quad \begin{array}{r} 409 \\ 355 \\ +87 \\ \hline \end{array} \quad \begin{array}{r} 17 \\ 257 \\ +496 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad \$2.78 \\ 2.98 \\ +1.67 \\ \hline \end{array} \quad \begin{array}{r} \$8.67 \\ .64 \\ +.35 \\ \hline \end{array} \quad \begin{array}{r} \$7.47 \\ 1.03 \\ +.68 \\ \hline \end{array} \quad \begin{array}{r} \$ .95 \\ .65 \\ +1.09 \\ \hline \end{array} \quad \begin{array}{r} \$3.85 \\ .75 \\ +5.56 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 923 \\ -258 \\ \hline \end{array} \quad \begin{array}{r} 631 \\ -272 \\ \hline \end{array} \quad \begin{array}{r} 764 \\ -266 \\ \hline \end{array} \quad \begin{array}{r} 453 \\ -155 \\ \hline \end{array} \quad \begin{array}{r} 577 \\ -389 \\ \hline \end{array} \quad \begin{array}{r} 836 \\ -397 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 945 \\ -597 \\ \hline \end{array} \quad \begin{array}{r} 824 \\ -478 \\ \hline \end{array} \quad \begin{array}{r} 451 \\ -293 \\ \hline \end{array} \quad \begin{array}{r} 963 \\ -687 \\ \hline \end{array} \quad \begin{array}{r} 742 \\ -465 \\ \hline \end{array} \quad \begin{array}{r} 964 \\ -397 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 918 \\ -479 \\ \hline \end{array} \quad \begin{array}{r} 716 \\ -349 \\ \hline \end{array} \quad \begin{array}{r} 617 \\ -498 \\ \hline \end{array} \quad \begin{array}{r} 702 \\ -536 \\ \hline \end{array} \quad \begin{array}{r} 801 \\ -268 \\ \hline \end{array} \quad \begin{array}{r} 602 \\ -354 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad \$8.00 \\ -.48 \\ \hline \end{array} \quad \begin{array}{r} \$3.00 \\ -1.06 \\ \hline \end{array} \quad \begin{array}{r} \$5.22 \\ -4.68 \\ \hline \end{array} \quad \begin{array}{r} \$8.21 \\ -7.49 \\ \hline \end{array} \quad \begin{array}{r} \$6.00 \\ -5.75 \\ \hline \end{array}$$

$$7. \quad \frac{1}{2} \text{ of } 162 = \quad \frac{1}{2} \text{ of } 104 = \quad \frac{1}{2} \text{ of } 126 = \quad \frac{1}{2} \text{ of } 180 =$$

$$8. \quad \frac{1}{3} \text{ of } 153 = \quad \frac{1}{3} \text{ of } 129 = \quad \frac{1}{3} \text{ of } 213 = \quad \frac{1}{3} \text{ of } 180 =$$

$$9. \quad \frac{1}{4} \text{ of } 168 = \quad \frac{1}{4} \text{ of } 124 = \quad \frac{1}{4} \text{ of } 164 = \quad \frac{1}{4} \text{ of } 160 =$$

$$10. \quad 2 \overline{) \$1.84} \quad 2 \overline{) \$1.48} \quad 3 \overline{) \$2.76} \quad 3 \overline{) \$2.19} \quad 3 \overline{) \$2.40}$$

$$11. \quad 2 \overline{) \$1.08} \quad 3 \overline{) \$1.50} \quad 4 \overline{) \$1.24} \quad 2 \overline{) \$1.26} \quad 6 \overline{) \$1.86}$$

$$\begin{array}{r} 12. \quad 42 \\ \times 4 \\ \hline \end{array} \quad \begin{array}{r} 90 \\ \times 2 \\ \hline \end{array} \quad \begin{array}{r} 93 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} 80 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} 73 \\ \times 2 \\ \hline \end{array} \quad \begin{array}{r} 51 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad \$72 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} \$61 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} \$94 \\ \times 2 \\ \hline \end{array} \quad \begin{array}{r} \$92 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} \$32 \\ \times 4 \\ \hline \end{array} \quad \begin{array}{r} \$52 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad \$21 \\ \times 5 \\ \hline \end{array} \quad \begin{array}{r} \$64 \\ \times 2 \\ \hline \end{array} \quad \begin{array}{r} \$84 \\ \times 2 \\ \hline \end{array} \quad \begin{array}{r} \$31 \\ \times 6 \\ \hline \end{array} \quad \begin{array}{r} \$21 \\ \times 8 \\ \hline \end{array} \quad \begin{array}{r} \$43 \\ \times 3 \\ \hline \end{array}$$

An illustration on the left side of the page shows a group of children walking along a path towards a picnic area. In the background, there are trees and a building. A boy in a blue shirt and brown pants is walking towards the foreground. Behind him, a girl in a white shirt and a blue hat is walking. In the foreground, a boy in a blue shirt and a girl in a blue shirt are walking. A signpost with a blue arrow pointing right says "PICNIC AREA".

## Multiply or Divide?

Multiplication problems and division problems are always about equal groups. In multiplication problems you put equal groups together. In division problems you find how many are in one of the equal parts of a group, or how many equal parts there are.

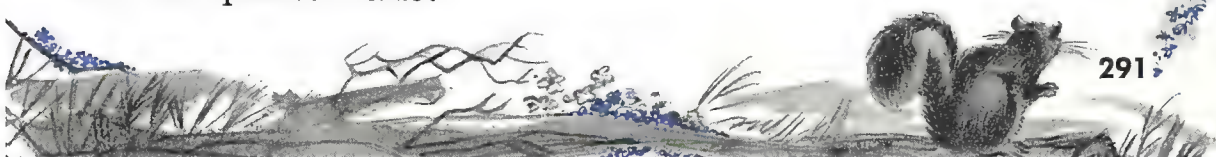
Study each of the following problems to see if you should multiply or divide. Then do what you think you should do to solve the problem.

1. Jane bought 3 dozen oranges. The price was \$.43 a dozen. How much did Jane pay for the oranges?
2. Bob bought  $\frac{1}{3}$  of a dozen eggs. The price was 69¢ a dozen. How much did Bob pay for the eggs?
3. What was Tom's score if he made 50 on each of 3 tries?
4. Jim kept his hens in 4 hen yards. In each yard he kept 32 hens. How many hens did Jim have?
5. How many boxes will Tony need to hold 120 baskets of berries if each box holds 6 baskets?
6. The children fixed the school hall for a show. They put in 9 rows of seats with 20 seats in each row. How many seats did they put in?
7. There are 60 minutes in an hour. How many minutes are there in 3 hours?
8. There are 24 hours in a day. How many hours are there in 2 days?
9. There are 4 buses, equal in size, to take 160 children to a school picnic. How many children should go in each bus?





10. There will be 160 children at the school picnic. A quart of ice cream serves 8 people. How many quarts will be needed to serve all the children at the picnic?
11. Dick's family have a car that will go 21 miles on a gallon of gasoline. How far will it go on 7 gallons of gasoline?
12. Pencils come in boxes, 72 pencils to a box. How many pencils will you get if you buy 4 boxes?
13. Joe saves \$.40 a week for 4 weeks. How much does he save in all in this time?
14. Jean wants to save \$1.50 in 3 weeks. She decides to save  $\frac{1}{3}$  of the money each week. How much should she save each week?
15. It takes 4 quarts to make a gallon. How many gallons will 120 quarts make?





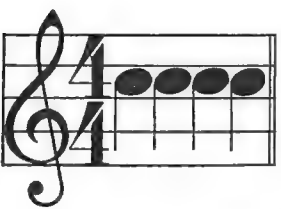
## Using Numbers in Music



Almost everyone likes to sing. To sing together, you must practice counting the time evenly. Sing the *whole* note at the left, while someone counts or taps the time, one-two-three-four. Hold the whole note for the full count of four.



The notes at the left are *half* notes. You count one-two for the first half note and three-four for the second half note. A count of two is half a full count of four.



The notes at the left are *quarter* notes. You count one for the first quarter note, two for the second, three for the third, and four for the fourth. Each count of one is a quarter of a full count of four.

Sing the little song written below. Tap the time softly with your finger. Keep the count evenly: 1 - 2 - 3 - 4, 1 - 2 - 3 - 4, and so on to the end of the song.

1 - 2 - 3 - 4    1 - 2    3 - 4    1    2    3    4    1 - 2 - 3 - 4



Sweet      mu — sic    sing the birds so    gay,

1 - 2    3    4    1 - 2    3 - 4    1    2    3    4    1 - 2 - 3 - 4



Tell — ing me    tru — ly    spring is here to — day.

## Finding What You Need to Study Again

If you need to study something again, the page numbers at the side tell you where to find it.

Copy each example and write the answer.

1.  $\begin{array}{r} 1 \\ \times 3 \\ \hline \end{array}$   $\begin{array}{r} 3 \\ \times 3 \\ \hline \end{array}$   $\begin{array}{r} 5 \\ \times 3 \\ \hline \end{array}$   $\begin{array}{r} 7 \\ \times 3 \\ \hline \end{array}$   $\begin{array}{r} 9 \\ \times 3 \\ \hline \end{array}$   $\begin{array}{r} 2 \\ \times 3 \\ \hline \end{array}$   $\begin{array}{r} 4 \\ \times 3 \\ \hline \end{array}$   $\begin{array}{r} 6 \\ \times 3 \\ \hline \end{array}$   $\begin{array}{r} 8 \\ \times 3 \\ \hline \end{array}$   $\begin{array}{r} 0 \\ \times 3 \\ \hline \end{array}$

2.  $3 \overline{)15}$   $3 \overline{)27}$   $3 \overline{)0}$   $3 \overline{)21}$   $5 \overline{)15}$   $7 \overline{)21}$   $9 \overline{)27}$

3.  $4 \times 4 =$   $16 \div 4 =$   $12 \div 4 =$   $3 \times 4 =$

4. Draw a picture to show you understand the meaning of each of these facts:  $4 \times 3 = 12$ ;  $3 \times 5 = 15$ .

5. Show by an addition example that you understand the meaning of each of these multiplication facts:  $3 \times 9 = 27$ ;  $8 \times 3 = 24$ .

Copy each example, write the answer, and check.

6.  $\begin{array}{r} 42 \\ \times 4 \\ \hline \end{array}$   $\begin{array}{r} 23 \\ \times 3 \\ \hline \end{array}$   $\begin{array}{r} 52 \\ \times 3 \\ \hline \end{array}$   $\begin{array}{r} 92 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 70 \\ \times 3 \\ \hline \end{array}$   $\begin{array}{r} 54 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 90 \\ \times 3 \\ \hline \end{array}$

7.  $\begin{array}{r} 51 \\ \times 4 \\ \hline \end{array}$   $\begin{array}{r} 60 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 82 \\ \times 3 \\ \hline \end{array}$   $\begin{array}{r} 74 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 92 \\ \times 4 \\ \hline \end{array}$   $\begin{array}{r} 63 \\ \times 3 \\ \hline \end{array}$   $\begin{array}{r} 70 \\ \times 4 \\ \hline \end{array}$

8.  $3 \overline{)36}$   $4 \overline{)48}$   $5 \overline{)55}$   $3 \overline{)96}$   $4 \overline{)80}$

9.  $2 \overline{)188}$   $3 \overline{)156}$   $4 \overline{)168}$   $5 \overline{)150}$

Copy each example and write the answer.

10.  $\frac{1}{3}$  of 90 =  $\frac{1}{3}$  of 18 =  $\frac{1}{3}$  of 99 =

11.  $\frac{1}{4}$  of 44 =  $\frac{1}{4}$  of 88 =  $\frac{1}{4}$  of 16 =

12. What is  $\frac{1}{3}$  of 63 cents?

13. At 63¢ a dozen, what did 3 dozen eggs cost?



Page

274

281, 282

284, 285

272, 286

275

278

278

287

287

283

288

283

278



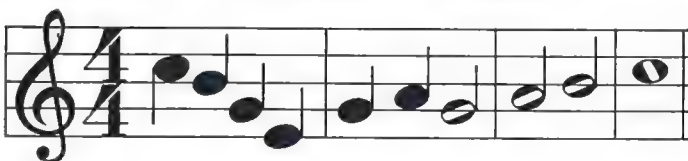
## Finding Out What You Know



### A. Word Meanings

Copy these sentences, putting in the missing numbers or words.

1. One half of a group is one of the \_\_\_\_\_ equal parts of the group.
2. One third of a group is one of the \_\_\_\_\_ equal parts of the group.
3. One fourth of a group is one of the \_\_\_\_\_ equal parts of the group.
4. Another name for one fourth is one \_\_\_\_\_.
5. To find  $\frac{1}{2}$  of a number, divide by \_\_\_\_\_.
6. To find  $\frac{1}{3}$  of a number, divide by \_\_\_\_\_.
7. To find  $\frac{1}{4}$  of a number, divide by \_\_\_\_\_.
8. The music here has \_\_\_\_\_ quarter notes, \_\_\_\_\_ half notes, and one \_\_\_\_\_ note.

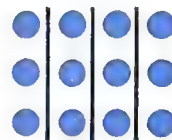


### B. Arithmetic Understandings

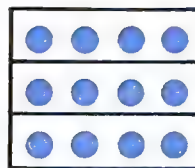
1. In which picture, A or B, can you see the meaning of  $4 \times 3$ ?
2. In which picture, A or B, can you see the meaning of  $3 \times 4$ ?
3. In which picture, C or D, can you see that  $\frac{1}{4}$  of  $12 = 3$ ?
4. In which picture, C or D, can you see that  $\frac{1}{3}$  of  $12 = 4$ ?



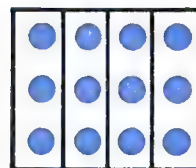
A



B



C



D

### C. Number Facts and Skills

With each group of three numbers, write two multiplication facts and two division facts that belong in the same family.

1. 21, 3, 7

2. 18, 3, 6

3. 24, 3, 8

4. 27, 3, 9

5. 15, 3, 5

6. 12, 3, 4

Copy each example and find the answer.

7. 
$$\begin{array}{r} 12 \\ \times 4 \\ \hline \end{array}$$

8. 
$$\begin{array}{r} 42 \\ \times 4 \\ \hline \end{array}$$

9. 
$$\begin{array}{r} 12 \\ \times 3 \\ \hline \end{array}$$

10. 
$$\begin{array}{r} 62 \\ \times 3 \\ \hline \end{array}$$

11.  $3 \overline{)39}$

12.  $3 \overline{)279}$

13.  $4 \overline{)84}$

14.  $4 \overline{)164}$

15.  $\frac{1}{3}$  of \$1.56 =

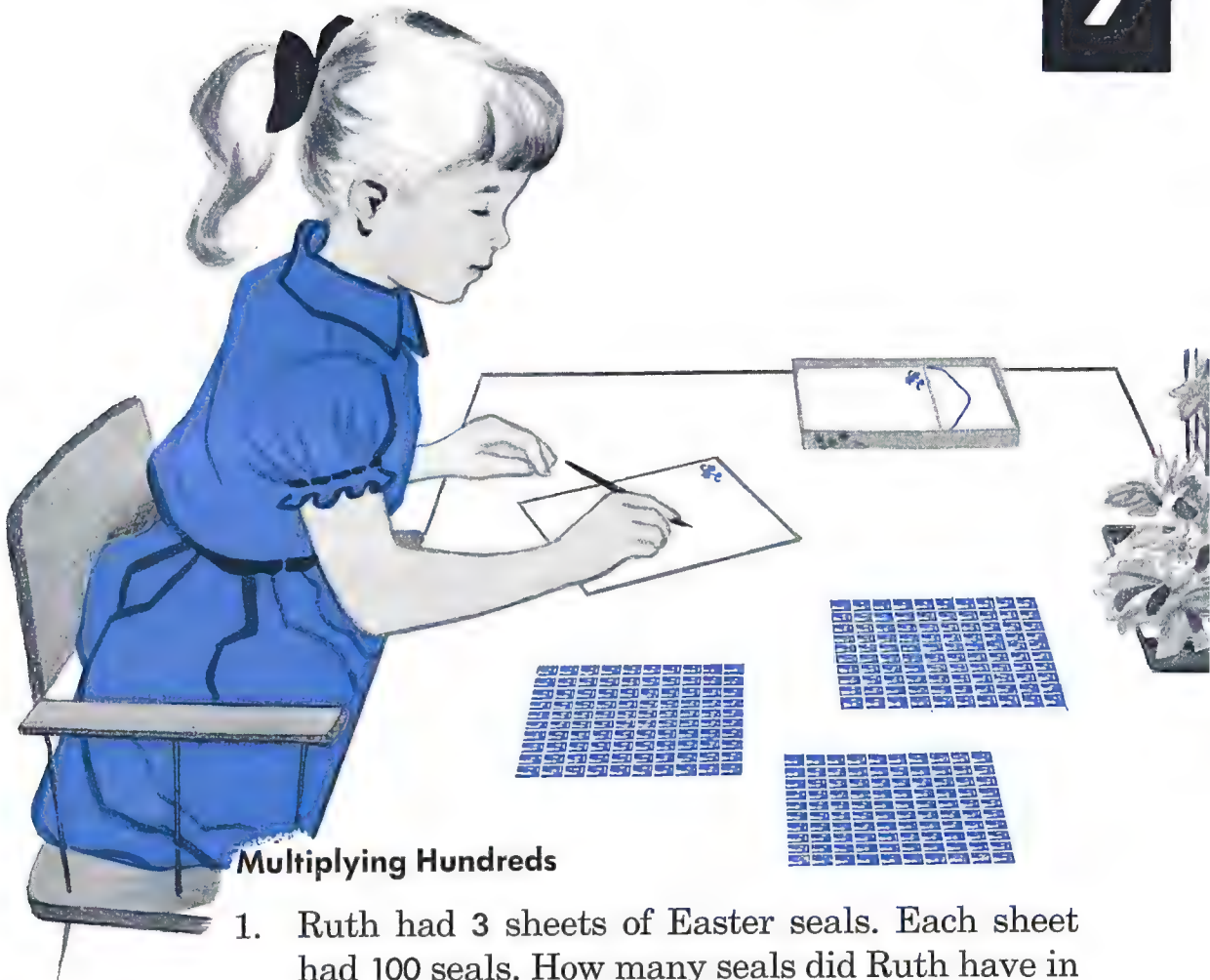
16.  $\frac{1}{4}$  of \$1.28 =

### D. Problem Solving

1. Jack had a duck that laid 254 eggs one year and 248 eggs the next year. How many eggs did the duck lay in the two years?
2. Mike earned \$2.48 one week and \$2.54 the next week. How much more money did he earn the second week than he earned the first week?
3. Alice bought 3 yards of ribbon that cost \$.72 a yard. How much did she pay for the ribbon?
4. Ann had 129 paper dolls. She was getting tired of them, so she gave  $\frac{1}{3}$  of them to Sue,  $\frac{1}{3}$  of them to Betty, and  $\frac{1}{3}$  of them to Ellen. How many dolls did she give to each girl?
5. Ted went to the bank to get 155 pennies changed to nickels. How many nickels could he get for his pennies?







### Multiplying Hundreds

1. Ruth had 3 sheets of Easter seals. Each sheet had 100 seals. How many seals did Ruth have in all?

Why is multiplication the way to solve this problem?

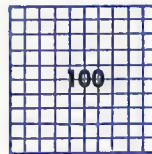
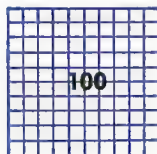
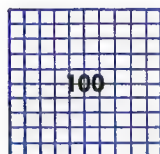
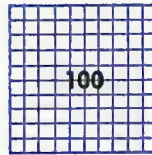
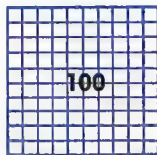
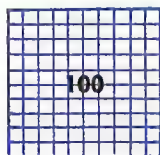
$100 = \underline{\quad ? \quad}$  hundred,  $\underline{\quad ? \quad}$  tens,  $\underline{\quad ? \quad}$  ones

$3 \times 1$  hundred =  $\underline{\quad ? \quad}$  hundreds

To show the answer without writing the word *hundreds*, you would write  $\underline{\quad ? \quad}$ .

Ruth had  $\underline{\quad ? \quad}$  seals.

# Multiplying and Dividing Three-Place Numbers



Copy each example and write the answer without using the word *hundreds*.

$$\begin{array}{r} 2. \quad 200 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} 100 \\ \times 5 \\ \hline \end{array} \quad \begin{array}{r} 300 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} 100 \\ \times 7 \\ \hline \end{array} \quad \begin{array}{r} 200 \\ \times 4 \\ \hline \end{array} \quad \begin{array}{r} 100 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 400 \\ \times 2 \\ \hline \end{array} \quad \begin{array}{r} 100 \\ \times 6 \\ \hline \end{array} \quad \begin{array}{r} 200 \\ \times 2 \\ \hline \end{array} \quad \begin{array}{r} 100 \\ \times 4 \\ \hline \end{array} \quad \begin{array}{r} 600 \\ \times 1 \\ \hline \end{array} \quad \begin{array}{r} 100 \\ \times 8 \\ \hline \end{array}$$

Look again at the first example above. You can multiply in three steps if you want to.

Think of 200 as 2 hundreds, 0 tens, 0 ones.

First multiply the ones.  $3 \times 0 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in ones place. Then multiply the tens.  $3 \times 0 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in tens place. Then multiply the hundreds.  $3 \times 2 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in hundreds place. Add to check the answer.

Multiply these numbers, using three steps.

$$4. \quad 2 \times 100 \quad 3 \times 300 \quad 2 \times 400 \quad 8 \times 100$$

$$\begin{array}{r} 200 \\ \times 3 \\ \hline 600 \end{array}$$

Check

$$\begin{array}{r} 200 \\ 200 \\ 200 \\ \hline 600 \end{array}$$



## Putting Together Hundreds

Solve each problem by multiplying. Check by addition.

1. A plane flew 200 miles each hour for 4 hours. How far did the plane fly in the 4 hours?
2. Tom had 2 books of stamps in his collection. There were 200 stamps in each book. How many stamps did Tom have in all in the 2 books?
3. Tony's father had 2 gardens with 300 turnip plants in each garden. How many turnip plants was this in all?
4. There were 2 schools in a town. In each school there were 400 children. How many children were there in both schools?
5. Judy's class put on a play for the school. They gave the play 4 times. Each time 100 children saw the play. How many children saw the play?
6. Ann's family went on a long trip. Each day they drove 300 miles. How far did they drive in 3 days?

### Practice to Remember

Copy and multiply. If you are not sure of an answer, try turning the numbers around, as at the left. Use addition as a check.

- |    |  |  |  |  |  |  |  |  |  |  |
|----|--|--|--|--|--|--|--|--|--|--|
| 1. | $\begin{array}{r} 8 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 2 \\ \times 4 \\ \hline \end{array}$ | $\begin{array}{r} 9 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 3 \\ \times 7 \\ \hline \end{array}$ | $\begin{array}{r} 5 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 3 \\ \times 9 \\ \hline \end{array}$ | $\begin{array}{r} 4 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 5 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 3 \\ \times 8 \\ \hline \end{array}$ | $\begin{array}{r} 0 \\ \times 7 \\ \hline \end{array}$ |
| 2. | $\begin{array}{r} 4 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 2 \\ \times 9 \\ \hline \end{array}$ | $\begin{array}{r} 2 \\ \times 7 \\ \hline \end{array}$ | $\begin{array}{r} 1 \\ \times 8 \\ \hline \end{array}$ | $\begin{array}{r} 3 \\ \times 6 \\ \hline \end{array}$ | $\begin{array}{r} 4 \\ \times 1 \\ \hline \end{array}$ | $\begin{array}{r} 6 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 1 \\ \times 9 \\ \hline \end{array}$ | $\begin{array}{r} 0 \\ \times 6 \\ \hline \end{array}$ | $\begin{array}{r} 2 \\ \times 5 \\ \hline \end{array}$ |

×

÷

×

÷

×



## Multiplying Three-Place Numbers

Dick and Ruth save stamps in their stamp books. Ruth's book has 124 stamps in it. Dick's book also has 124 stamps in it. How many stamps in all are in the 2 books?

You can find the answer by multiplying, because the two groups you are putting together are equal.

Study the example. The answer for each step is shown by the colored figure in its correct place.

First multiply the ones. Think  $2 \times 4 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in ones place.

Then multiply the tens. Think  $2 \times 2 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in tens place.

Then multiply the hundreds. Think  $2 \times 1 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in hundreds place.

The answer is  $\underline{\quad ? \quad}$  stamps. Check by adding.

Study the example at the right. Explain how the answer is found. Then copy each example below, find the answer, and check by adding.

- |   |  |  |  |  |  |
|---|--|--|--|--|--|
| 1. $\begin{array}{r} 213 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 134 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 323 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 441 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 233 \\ \times 2 \\ \hline \end{array}$ | $\begin{array}{r} 321 \\ \times 3 \\ \hline \end{array}$ |
| 2. $\begin{array}{r} 122 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 213 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 333 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 111 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 212 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 323 \\ \times 3 \\ \hline \end{array}$ |
| 3. $\begin{array}{r} 131 \\ \times 3 \\ \hline \end{array}$ | $\begin{array}{r} 212 \\ \times 4 \\ \hline \end{array}$ | $\begin{array}{r} 121 \\ \times 4 \\ \hline \end{array}$ | $\begin{array}{r} 222 \\ \times 4 \\ \hline \end{array}$ | $\begin{array}{r} 111 \\ \times 4 \\ \hline \end{array}$ | $\begin{array}{r} 444 \\ \times 2 \\ \hline \end{array}$ |

$$\begin{array}{r} 124 \\ \times 2 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 124 \\ \times 2 \\ \hline 48 \end{array}$$

$$\begin{array}{r} 124 \\ \times 2 \\ \hline 248 \end{array}$$

Check

$$\begin{array}{r} 124 \\ + 124 \\ \hline 248 \end{array}$$

$$\begin{array}{r} 423 \\ \times 2 \\ \hline 846 \end{array}$$

Check

$$\begin{array}{r} 423 \\ + 423 \\ \hline 846 \end{array}$$





## Multiplying Dollars and Cents

Tom bought 2 rabbits. He paid \$2.14 for each of them. How much did Tom pay for both rabbits?

Multiply to find the answer, because two *equal* groups of dollars and cents are to be put together.

Think of multiplying 214 pennies by 2.

Study the example. Say the missing numbers.

First multiply the ones.  $2 \times 4 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in ones place.

Then multiply the tens.  $2 \times 1 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in tens place.

Then multiply the hundreds.  $2 \times 2 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in hundreds place. Are 428 pennies worth \$4.28?

The whole example can be done in dollars and cents by putting in dollar signs and decimal points.

Solve each problem. Be sure that each answer makes sense. Check each answer.

1. If the price of meat is \$1.13 a pound, find the cost of 2 pounds.
2. What will Ted pay for 2 books if each book costs him \$2.12?
3. Dick buys 3 tee shirts at \$1.32 each. How much must he pay for the shirts?
4. Ruth buys 4 yards of cloth for a dress. The cloth is \$2.21 a yard. How much will the cloth cost?

214 pennies

$\times 2$

428 pennies

\$2.14

$\times 2$

\$4.28

Check

\$2.14

$+ 2.14$

\$4.28

## Middle Zeros and End Zeros

### THREE-PLACE MULTIPLICANDS AND PRODUCTS

Dick and his father drove to a big city and back. They drove 104 miles each way. How long was the whole trip?

Multiply 104 by 2 to find the answer. Why?

Study the example. Say the missing numbers.

First multiply the ones.  $2 \times 4 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in ones place.

Then multiply the tens.  $2 \times 0 = \underline{\quad ? \quad}$  Why must you write the 0 in tens place?

Then multiply the hundreds.  $2 \times 1 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in hundreds place.

The whole trip was  $\underline{\quad ? \quad}$  miles. Check by adding.

Sue watched the chickens being fed. They were in 3 big yards. In each yard there were 120 chickens. How many chickens were there in all?

Multiply to find the answer. Why?

Study the example. Say the missing numbers.

First multiply the ones.  $3 \times 0 = \underline{\quad ? \quad}$  Why must you write the 0 in ones place?

Then multiply the tens.  $3 \times 2 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in tens place.

Then multiply the hundreds.  $3 \times 1 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in hundreds place.

In all there were  $\underline{\quad ? \quad}$  chickens. Check by adding.

Copy each example. Multiply and check.

- |    |            |            |            |            |            |            |            |
|----|------------|------------|------------|------------|------------|------------|------------|
| 1. | 102        | 203        | 401        | 202        | 201        | 302        | 101        |
|    | $\times 2$ | $\times 3$ | $\times 2$ | $\times 2$ | $\times 4$ | $\times 3$ | $\times 5$ |
| 2. | 210        | 420        | 340        | 120        | 110        | 320        | 130        |
|    | $\times 3$ | $\times 2$ | $\times 2$ | $\times 4$ | $\times 5$ | $\times 3$ | $\times 2$ |

$$\begin{array}{r} 104 \text{ miles} \\ \times 2 \\ \hline 208 \text{ miles} \end{array}$$

Check

$$\begin{array}{r} 104 \text{ miles} \\ 104 \text{ miles} \\ \hline 208 \text{ miles} \end{array}$$

$$\begin{array}{r} 120 \text{ chickens} \\ \times 3 \\ \hline 360 \text{ chickens} \end{array}$$

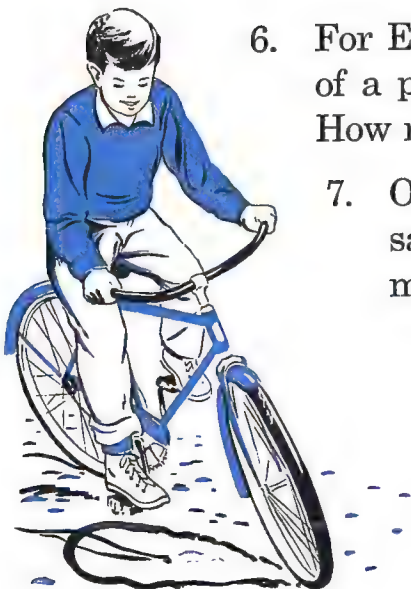
Check

$$\begin{array}{r} 120 \text{ chickens} \\ 120 \text{ chickens} \\ 120 \text{ chickens} \\ \hline 360 \text{ chickens} \end{array}$$

## Money Problems

Each of these problems is a “put together” problem. Multiply if the numbers to be put together are equal. Add if the numbers to be put together are not equal.

1. Tom bought 3 presents. For one present he paid \$1.00; for another, \$1.25; and for another, \$.85. How much in all did the presents cost?
2. Ann bought 3 presents. For one present she paid \$1.20; for another, \$1.20; and for another, \$1.20. How much in all did the presents cost?
3. Tony bought 4 rabbits. One rabbit cost him \$1.25; another, \$1.35; another, \$1.50; and another, \$1.65. How much in all did Tony's rabbits cost?
4. Ted bought 4 rabbits. He paid \$2.10 for each of them. How much did Ted's rabbits cost?
5. Ellen was given money for her birthday. Her father gave her \$2.00, her mother gave her \$1.50, her brother gave her \$.75, and her aunt gave her \$1.25. How much money was Ellen given on her birthday?
6. For Ellen's birthday 4 of her friends shared the cost of a present. Each girl's share of the cost was \$.40. How much did Ellen's present cost?
7. One week Joe saved \$1.24. The next week he saved \$1.39. The next week he saved \$1.50. How much did Joe save in the three weeks?
8. Jack was saving money for a bicycle like Bill's. Each week he saved \$1.30. How much did he save in 3 weeks?



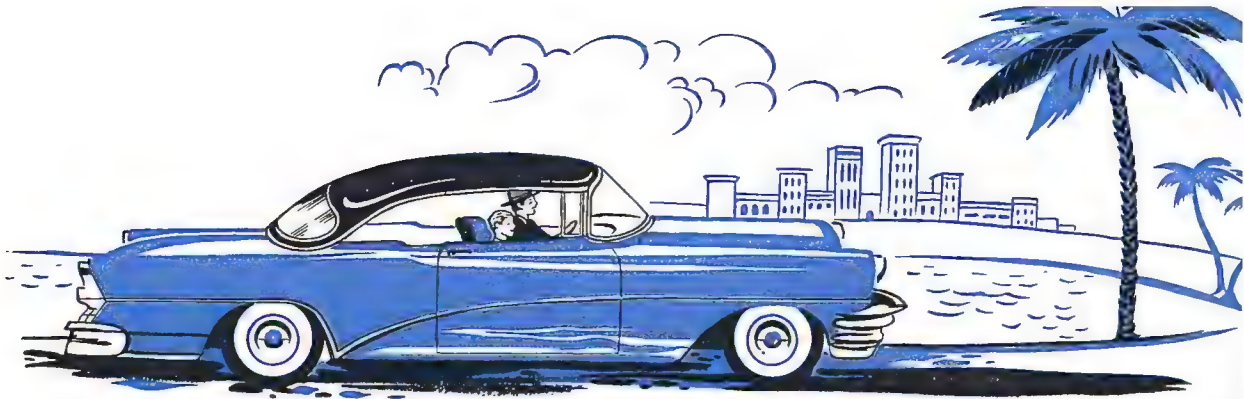
## Multiplication or Addition?

In “put together” problems, you add or multiply. Copy the number of each problem. After each number write A if you should add, or M if you should multiply. Then solve the problem.

1. How many stamps did Bob have in his 2 books? In one book he had 230 stamps; in the other, 290.
2. Jane had 3 books of stamps with 230 stamps in each book. How many stamps did she have in all?
3. Betty had 4 boxes of paper dolls. In one box she had 50 dolls; in another, 60 dolls; in another, 20 dolls; and in another, 100 dolls. How many paper dolls did Betty have in all?
4. Patsy also had 4 boxes of paper dolls. In each box she had 102 dolls. How many paper dolls did Patsy have in all?
5. How many miles did Dick’s father ride in all in 4 days? He rode 210 miles on Monday, 210 on Tuesday, 210 on Wednesday, and 210 on Thursday.
6. Jane’s family went on a 4-day trip. They rode 210 miles on Thursday, 215 miles on Friday, 300 miles on Saturday, and 125 miles on Sunday. How many miles did the family go on their 4-day trip?
7. Jim raised turkeys on his farm. Last year he had 43 turkeys in one field, 52 in a second field, and 67 in a third field. How many turkeys did Jim have in all in the 3 fields?
8. This year Jim had 52 turkeys in each of his 3 fields. How many turkeys did Jim have this year?







### Dividing Hundreds in One Step

600 miles	
? miles	? miles
first	second
day	day

Bob and his father wanted to drive 600 miles in 2 days, going the same distance each day. How far should they drive each day?

Divide to find the answer, because 600 is to be taken apart into 2 *equal* parts. The answer will be one of the 2 equal parts.

Think of 600 as 6 hundreds, 0 tens, 0 ones.  
6 hundreds  $\div$  2 = ? hundreds

The answer can be written as 300, without the word *hundreds*. Why?

The two zeros show that 3 is in hundreds place. They show also that there are no tens and no ones in the answer. Check by multiplying.

Bob and his father should drive ? miles each day.

Copy each example and divide. Remember to write the zeros in tens place and in ones place, so that each answer will mean hundreds. Check by multiplying.

- |                        |                     |                     |                     |                     |
|------------------------|---------------------|---------------------|---------------------|---------------------|
| 1. $2 \overline{)200}$ | $4 \overline{)600}$ | $3 \overline{)900}$ | $7 \overline{)700}$ | $4 \overline{)800}$ |
| 2. $2 \overline{)800}$ | $5 \overline{)500}$ | $3 \overline{)300}$ | $8 \overline{)800}$ | $9 \overline{)900}$ |

## Dividing Hundreds in Three Steps



Sue's father had 400 ducks. He wanted to put the same number of ducks into each of 2 ponds. He asked Sue how many ducks should be put into each pond.

Sue divided 400 by 2 to find the answer. Why?

She thought of 400 as 4 hundreds, 0 tens, 0 ones. She used three steps in dividing.

Study the example. Say the missing numbers.

First divide the hundreds.  $4 \div 2 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in hundreds place over the 4.

Then divide the tens.  $0 \div 2 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  over the 0 in tens place.

Then divide the ones.  $0 \div 2 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  over the 0 in ones place.

Sue told her father that 200 ducks should be put in each pond. Check by multiplying.

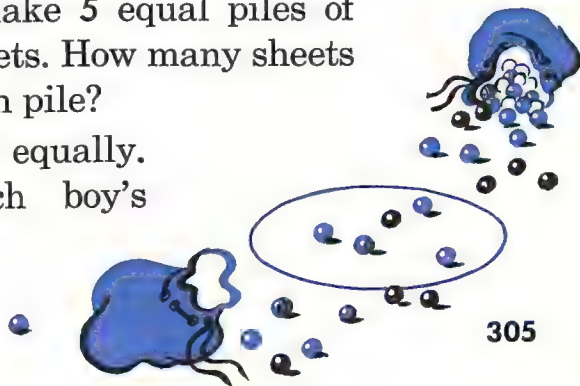
$$\begin{array}{r} 200 \text{ ducks} \\ 2 \overline{)400} \text{ ducks} \end{array}$$

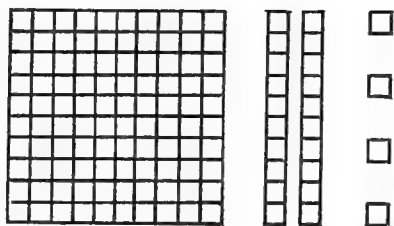
Check

$$\begin{array}{r} 200 \text{ ducks} \\ \times 2 \\ \hline 400 \text{ ducks} \end{array}$$

Solve the following problems by dividing, because in each problem a number is to be made into equal parts and you are to find the size of each part.

1. Bill made 4 equal groups of 400 sticks. How many sticks did he put in each group?
2. Mary had a collection of 800 pennies. She put half of them in the bank. How many pennies is half of 800?
3. How much is  $\frac{1}{3}$  of 900?
4. Jean's teacher asked her to make 5 equal piles of paper from a package of 500 sheets. How many sheets of paper should Jean put in each pile?
5. Two boys shared 200 marbles equally. How many marbles was each boy's share?





## Dividing Three-Place Numbers

The children in the third grade were studying the steps in dividing 3-place numbers. They studied a picture like the one at the side.

The picture shows the number 248 with little squares. The squares are grouped. There are 2 hundreds, 4 tens, and 8 ones. The colored line divides the groups into two equal parts.

1. Read the number shown by the upper part.
2. Read the number shown by the lower part.
3. The picture shows that  $\frac{1}{2}$  of 248 = how many?
4. The picture shows that  $248 \div 2 =$  how many?

Study the way shown at the left to divide 248 by 2. The answer for each division is shown by the colored figure in its correct place.

First divide the hundreds.  $2 \div 2 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in hundreds place over the 2. Then divide the tens.  $4 \div 2 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in tens place over the 4. Then divide the ones.  $8 \div 2 = \underline{\quad ? \quad}$  Write  $\underline{\quad ? \quad}$  in ones place over the 8. The answer is 124. Check by multiplying.

Copy each example and divide. Check by multiplying.

$$\begin{array}{r} 1 \\ 2 \overline{)248} \end{array}$$

$$\begin{array}{r} 12 \\ 2 \overline{)248} \end{array}$$

$$\begin{array}{r} 124 \\ 2 \overline{)248} \end{array}$$

$$\begin{array}{r} \text{Check} \\ 124 \\ \times 2 \\ \hline 248 \end{array}$$

$$5. \quad 2 \overline{)426}$$

$$2 \overline{)268}$$

$$2 \overline{)646}$$

$$2 \overline{)882}$$

$$2 \overline{)466}$$

$$6. \quad 3 \overline{)963}$$

$$3 \overline{)366}$$

$$3 \overline{)639}$$

$$3 \overline{)999}$$

$$3 \overline{)333}$$

$$7. \quad 3 \overline{)636}$$

$$3 \overline{)969}$$

$$3 \overline{)393}$$

$$4 \overline{)848}$$

$$4 \overline{)484}$$

# Practice to Remember

Copy each example, add, and check.

$$\begin{array}{r} 1. \quad 246 \\ 135 \\ \hline 489 \end{array} \quad \begin{array}{r} 138 \\ 298 \\ \hline 187 \end{array} \quad \begin{array}{r} 527 \\ 199 \\ \hline 178 \end{array} \quad \begin{array}{r} 108 \\ 107 \\ \hline 767 \end{array} \quad \begin{array}{r} 438 \\ 209 \\ \hline 72 \end{array} \quad \begin{array}{r} 687 \\ 78 \\ \hline 65 \end{array} \quad \begin{array}{r} 54 \\ 96 \\ \hline 738 \end{array}$$

$$\begin{array}{r} 2. \quad \$8.09 \\ .67 \\ \hline .32 \end{array} \quad \begin{array}{r} \$2.99 \\ .66 \\ \hline 3.78 \end{array} \quad \begin{array}{r} \$ .48 \\ .65 \\ \hline 5.89 \end{array} \quad \begin{array}{r} \$1.03 \\ 1.25 \\ \hline .86 \end{array} \quad \begin{array}{r} \$ .39 \\ 4.49 \\ \hline .54 \end{array}$$

Copy each example, subtract, and check.

$$\begin{array}{r} 3. \quad 860 \\ 287 \\ \hline \end{array} \quad \begin{array}{r} 531 \\ 178 \\ \hline \end{array} \quad \begin{array}{r} 946 \\ 567 \\ \hline \end{array} \quad \begin{array}{r} 757 \\ 489 \\ \hline \end{array} \quad \begin{array}{r} 623 \\ 395 \\ \hline \end{array} \quad \begin{array}{r} 834 \\ 486 \\ \hline \end{array} \quad \begin{array}{r} 945 \\ 389 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 435 \\ 256 \\ \hline \end{array} \quad \begin{array}{r} 731 \\ 297 \\ \hline \end{array} \quad \begin{array}{r} 953 \\ 497 \\ \hline \end{array} \quad \begin{array}{r} 734 \\ 367 \\ \hline \end{array} \quad \begin{array}{r} 866 \\ 378 \\ \hline \end{array} \quad \begin{array}{r} 443 \\ 149 \\ \hline \end{array} \quad \begin{array}{r} 688 \\ 289 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 911 \\ 656 \\ \hline \end{array} \quad \begin{array}{r} 512 \\ 364 \\ \hline \end{array} \quad \begin{array}{r} 701 \\ 175 \\ \hline \end{array} \quad \begin{array}{r} 904 \\ 745 \\ \hline \end{array} \quad \begin{array}{r} 806 \\ 569 \\ \hline \end{array} \quad \begin{array}{r} 601 \\ 134 \\ \hline \end{array} \quad \begin{array}{r} 502 \\ 253 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad \$2.00 \\ .84 \\ \hline \end{array} \quad \begin{array}{r} \$8.00 \\ 1.98 \\ \hline \end{array} \quad \begin{array}{r} \$9.00 \\ 7.23 \\ \hline \end{array} \quad \begin{array}{r} \$7.42 \\ 6.43 \\ \hline \end{array} \quad \begin{array}{r} \$9.10 \\ 8.12 \\ \hline \end{array}$$

Copy each example, multiply, and check.

$$\begin{array}{r} 7. \quad 102 \\ \times 4 \\ \hline \end{array} \quad \begin{array}{r} 231 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} 410 \\ \times 2 \\ \hline \end{array} \quad \begin{array}{r} 320 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} 134 \\ \times 2 \\ \hline \end{array} \quad \begin{array}{r} 203 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} 123 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad \$1.32 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} \$2.12 \\ \times 4 \\ \hline \end{array} \quad \begin{array}{r} \$4.13 \\ \times 2 \\ \hline \end{array} \quad \begin{array}{r} \$1.20 \\ \times 4 \\ \hline \end{array} \quad \begin{array}{r} \$2.13 \\ \times 3 \\ \hline \end{array}$$

Copy each example, divide, and check.

$$\begin{array}{r} 9. \quad 4 \overline{)848} \end{array} \quad \begin{array}{r} 3 \overline{)639} \end{array} \quad \begin{array}{r} 3 \overline{)396} \end{array} \quad \begin{array}{r} 2 \overline{)826} \end{array} \quad \begin{array}{r} 4 \overline{)484} \end{array}$$

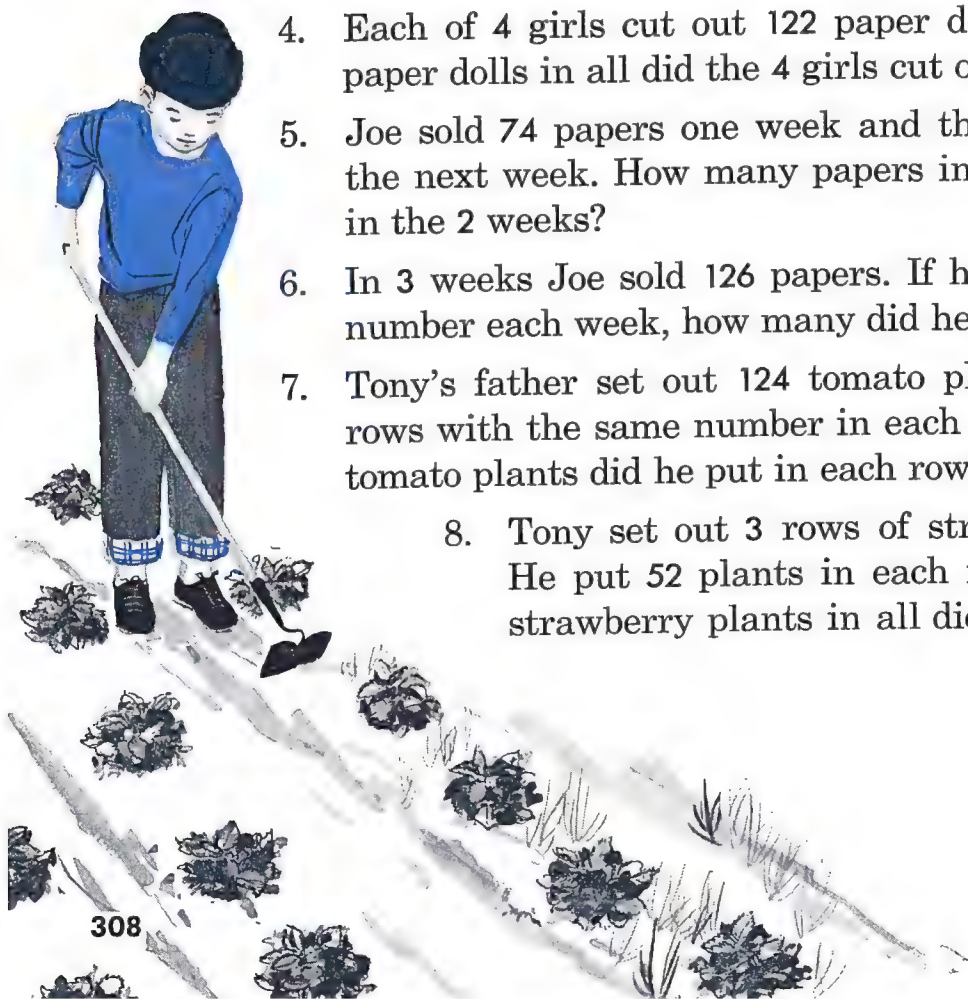
$$\begin{array}{r} 10. \quad 2 \overline{)644} \end{array} \quad \begin{array}{r} 2 \overline{)268} \end{array} \quad \begin{array}{r} 3 \overline{)966} \end{array} \quad \begin{array}{r} 4 \overline{)884} \end{array} \quad \begin{array}{r} 3 \overline{)939} \end{array}$$



## Multiplication and Division Problems

Multiply to put equal groups together. Divide to take a group apart to make equal smaller groups.

1. Each day last week Sue's hens laid 112 eggs. How many eggs did the hens lay in 3 days?
2. In 3 days Jack's hens laid 369 eggs. If they laid the same number each day, how many eggs did Jack get each day?
3. Four girls cut out 448 paper dolls. If each girl cut out the same number of dolls, how many paper dolls would this be for each girl?
4. Each of 4 girls cut out 122 paper dolls. How many paper dolls in all did the 4 girls cut out?
5. Joe sold 74 papers one week and the same number the next week. How many papers in all did Joe sell in the 2 weeks?
6. In 3 weeks Joe sold 126 papers. If he sold the same number each week, how many did he sell each week?
7. Tony's father set out 124 tomato plants. He had 2 rows with the same number in each row. How many tomato plants did he put in each row?
8. Tony set out 3 rows of strawberry plants. He put 52 plants in each row. How many strawberry plants in all did Tony set out?



# Dividing Dollars and Cents

The picture shows some money in dollars, dimes, and pennies.

1. Count the dollars. Count the dimes. Count the pennies.
2. Is \$6.84 the correct number of dollars and cents?
3. The colored line divides the money into 2 equal parts. How much money in dollars and cents is in each part?
4. You can find the answer without looking at the picture. Divide \$6.84 as you would any three-place number.



First divide the dollars.  $6 \div 2 = \underline{\hspace{1cm}}$  Write  $\underline{\hspace{1cm}}$  over the 6. Then divide the dimes.  $8 \div 2 = \underline{\hspace{1cm}}$  Write  $\underline{\hspace{1cm}}$  over the 8. Then divide the pennies.  $4 \div 2 = \underline{\hspace{1cm}}$  Write  $\underline{\hspace{1cm}}$  over the 4. The answer is  $\underline{\hspace{1cm}}$ . A dollar sign is put before the answer and a decimal point is put between the number of dollars and the number of cents. The answer is checked by multiplying.

\$3.42

2)

\$6.84

Check

\$3.42

x2

\$6.84

Divide and check. Remember to show each answer as dollars and cents.

- |    |                         |                         |                         |                         |                         |
|----|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| 5. | $2 \overline{) \$4.82}$ | $2 \overline{) \$2.68}$ | $2 \overline{) \$6.24}$ | $2 \overline{) \$8.46}$ | $2 \overline{) \$4.48}$ |
| 6. | $2 \overline{) \$2.42}$ | $2 \overline{) \$8.28}$ | $2 \overline{) \$4.22}$ | $2 \overline{) \$6.86}$ | $2 \overline{) \$8.64}$ |
| 7. | $3 \overline{) \$6.63}$ | $3 \overline{) \$3.96}$ | $3 \overline{) \$9.39}$ | $4 \overline{) \$8.48}$ | $4 \overline{) \$4.84}$ |

## Dividing Numbers with Middle or End Zeros

Sam wanted to make 2 equal groups of cards from his collection of 208 picture cards. How many cards should he put in each group?

Divide 208 by 2 to find the answer. Why?

$$\begin{array}{r} 104 \\ 2 \overline{)208} \end{array}$$

Check

$$\begin{array}{r} 104 \\ \times 2 \\ \hline 208 \end{array}$$

First divide the hundreds.  $2 \div 2 = \underline{\quad ? \quad}$  Write 1 in hundreds place over the 2.

Then divide the tens.  $0 \div 2 = \underline{\quad ? \quad}$  Why must you write the 0 in tens place over 0?

Then divide the ones.  $8 \div 2 = \underline{\quad ? \quad}$  Write 4 in ones place over the 8.

Sam should put  $\underline{\quad ? \quad}$  cards in each of the two equal groups.

Check the answer by multiplying.

Three children were given 360 pennies to share equally. How many pennies should each child take?

Divide 360 by 3 to answer the question. Why?

First divide the hundreds.  $3 \div 3 = \underline{\quad ? \quad}$  Write 1 in hundreds place over the 3.

Then divide the tens.  $6 \div 3 = \underline{\quad ? \quad}$  Write 2 in tens place over the 6.

Then divide the ones. There are no ones.  $0 \div 3 = \underline{\quad ? \quad}$  Why must you write the 0 in ones place over 0?

Each child should take  $\underline{\quad ? \quad}$  pennies.

Check the answer by multiplying.

Copy each example. Divide and check.

1.  $2 \overline{)204}$     $3 \overline{)609}$     $2 \overline{)802}$     $2 \overline{)404}$     $4 \overline{)804}$     $3 \overline{)906}$     $5 \overline{)505}$

2.  $3 \overline{)630}$     $2 \overline{)840}$     $2 \overline{)680}$     $4 \overline{)480}$     $5 \overline{)550}$     $3 \overline{)960}$     $2 \overline{)260}$

## Equal Amounts of Money

Each of these problems is about equal amounts of money. In each problem you divide to answer the question. After you find the answer, copy it in a sentence that answers the question asked in the problem. The kind of sentence to write is shown in problems 1 and 2.

1. Four children shared \$8.40 equally. How much money did each child get?  
Each child got \$\_\_?\_\_.
2. Jack had 505 pennies in his collection. He spent 5 pennies each day. How many days did it take to spend all of the money?  
It took \_\_?\_\_ days to spend all of the money.
3. How many weeks would it take for Joe to earn \$100 if he earned \$5 a week?
4. How much money should Joe save each week in equal amounts in order to save \$6.30 in 3 weeks?
5. Ruth's class have a record player. They have \$126 given them to buy records. How many sets of records at \$3 a set can they buy with this money?
6. Judy was going to camp. Her mother gave her \$4.80 for spending money. She told Judy the money must last her for 4 weeks. How much money can Judy spend each week, if she spends the same amount each week?

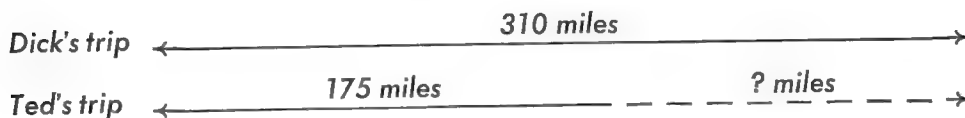




## Drawing Pictures of Problems

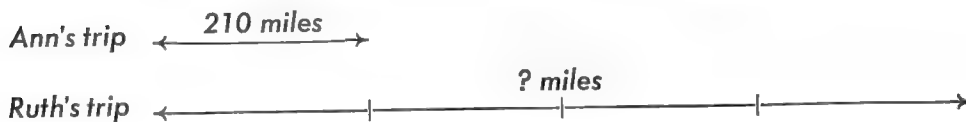
1. Dick's family went 310 miles on a trip. Ted's family went 175 miles. How much longer than Ted's trip was Dick's trip?

The picture below will help you to see that you should subtract to find the answer. Find the answer.

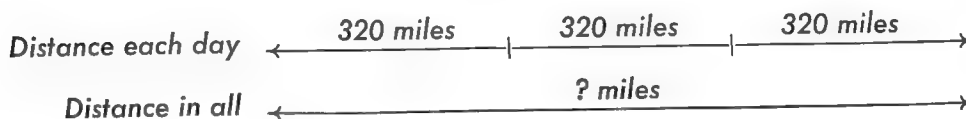


Under each problem is a picture of the problem, but without all of the numbers. Copy the picture and write the missing numbers. Then find the answer.

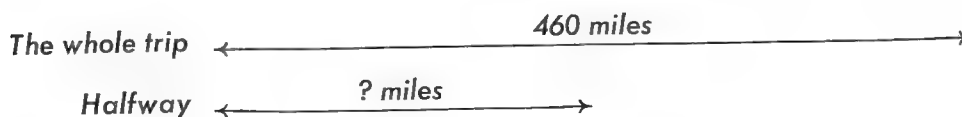
2. Ann went 210 miles on a trip. Ruth went on a trip 4 times as long. How long was Ruth's trip?



3. On a long trip Bob and his family went 320 miles each day for 3 days. How far did they go on the trip?



4. Judy and her family wanted to get to a place 460 miles away in 2 days. How far must they go the first day to get halfway?



5. Jane has \$1.40. She wants it to last 7 days, spending the same amount each day. How much should she spend each day?

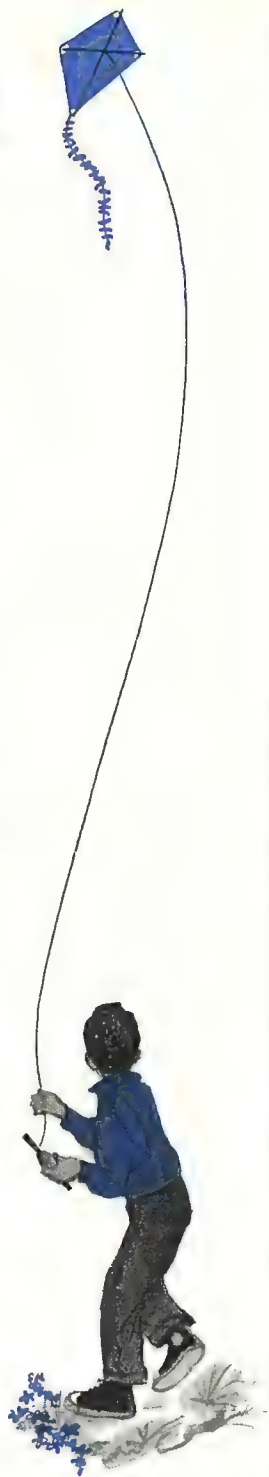
Jane's money	← \$1.40 →						
Days	1	2	3	4	5	6	7
Spent each day	?	?	?	?	?	?	?

6. If Joe spends \$.30 a day for 5 days, how much in all will he have spent?

Days	1	2	3	4	5
Spent each day	\$.30	\$.30	\$.30	\$.30	\$.30
Spent in all	← ? →				

See if you can draw a line picture to show that you understand each problem that follows. Then solve each problem.

7. Ellen paid \$.05 a bottle for milk at school. She bought one bottle each day. How much did she spend for milk in 5 days?
8. Joan's older sister took the train each day to get to work. She spent \$2.10 a week for train tickets. How much would she spend this way in 4 weeks?
9. Jim had a kite string 210 yards long made up of 3 equal pieces tied together. How long was each piece?
10. Betty bought 3 spools of thread. Each spool had 50 yards of thread on it. How many yards of thread did Betty buy?



## Helps for Problem Solving

To solve problems easily, we must understand the reasons for adding, subtracting, multiplying, and dividing.

$$\begin{array}{r} 3 \\ 5 \\ 4 \\ \hline 12 \end{array}$$

We *add* to put two or more groups together to make one group.

Mother bought 3 bananas, 5 apples, and 4 plums.  
How many pieces of fruit did Mother buy in all?

$$\begin{array}{r} 2 \\ \times 7 \\ \hline 14 \end{array}$$

We *multiply* to put two or more *equal* groups together to make one group.

Jack bought 7 cookies for 2 cents apiece.  
How many cents did he spend in all?

We *subtract* to take a group apart to make two smaller groups.

1. We find how many are left, or how many are gone, by subtracting.

$$\begin{array}{r} 18¢ \\ - 5¢ \\ \hline 13¢ \end{array}$$

John had 18 cents.

He spent 5 cents.

How many cents did he have left?



$$\begin{array}{r} 25¢ \\ - 10¢ \\ \hline 15¢ \end{array}$$

John had 25 cents.

He spent some and had 10 cents left.

How many cents did he spend?



2. We find how many more or how many fewer are in one group than in another by subtracting.

$$\begin{array}{r} 11 \\ - 6 \\ \hline 5 \end{array}$$

Sue had 11 paper dolls.

Betty had 6 paper dolls.

How many more did Sue have than Betty?

How many fewer did Betty have than Sue?



3. We find how much more or how much less one number is than another by subtracting.

Dick earned 75 cents.

Joe earned 50 cents.

How much more did Dick earn than Joe?

$$\begin{array}{r} 75¢ \\ - 50¢ \\ \hline 25¢ \end{array}$$

4. We find the difference between two numbers by subtracting.

Alice weighs 58 pounds.

Her little sister weighs 32 pounds.

What is the difference in their weights?

$$\begin{array}{r} 58 \\ - 32 \\ \hline 26 \end{array}$$

5. We find how many more are needed by subtracting.

Alice wants a balloon for every child who is coming to her party.

There are 8 children coming.

Alice has 5 balloons.

How many more balloons does Alice need?

$$\begin{array}{r} 8 \\ - 5 \\ \hline 3 \end{array}$$

We *divide* to take a group apart to make two or more *equal* groups.

1. We find how many equal groups there are by dividing.

Tom had 24 tin soldiers.

He set them in lines with 3 in a line.

How many lines of 3 are there?

$$\begin{array}{r} 8 \\ 3 \overline{)24} \end{array}$$







2. We find how many are in each of the equal groups by dividing.

$$\begin{array}{r} 8 \\ 3 \overline{)24} \end{array}$$

Joe and his 2 brothers were going fishing. Joe dug 24 worms for bait.

He shared them equally with his brothers. How many worms did each of the 3 boys have?

### Problems without Numbers

The missing word in each of the sentences below should be one of these:

add      subtract      multiply      divide

Read each sentence, and tell which word is missing.

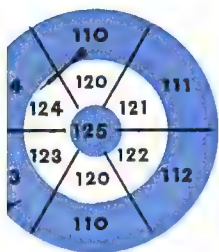
1. Ann knows how much one quart of milk costs. To find the cost of more than one quart, she should \_\_\_\_\_.
2. Ruth has to practice  $\frac{1}{2}$  an hour. She knows how many minutes are in an hour. To find how many minutes she must practice, she should \_\_\_\_\_.
3. Tom knows how many hens are in each of three equal groups. To find how many hens there are in all, he should \_\_\_\_\_.

4. Dick knows how much a knife costs. He knows how much money he has. To find how much more he needs, he should \_\_\_\_\_.
5. Mary knows how many shells she found on Monday, on Tuesday, and on Wednesday. To find how many shells she found in all, she should \_\_\_\_\_.
6. Jack knows the total cost of the school milk for one day. He knows the cost of one bottle of milk. To find how many bottles of milk are used, he should \_\_\_\_\_.
7. Bob knows how many boys there are in school and how many girls. To find the difference in the number of boys and girls, he should \_\_\_\_\_.
8. Alice knows how many cookies her mother made. She knows how many are left after she ate some. To find how many she ate, she should \_\_\_\_\_.
9. John knows how many children are in school. He knows that they are divided equally into three grades. To find how many are in each grade, he should \_\_\_\_\_.
10. Betty knows how much money she has. She knows how much one pencil costs. To find out how many pencils she can buy with her money, she should \_\_\_\_\_.
11. You know how much your allowance is each week and you want to save  $\frac{1}{2}$  of it. To find out how much to save, you should \_\_\_\_\_.
12. Sue knows how many paper dolls she has and how many Joan has. To find how many fewer she has than Joan, she should \_\_\_\_\_.



## Add, Subtract, Multiply, or Divide?

Read each problem. Think what you should do to find the answer. Then solve the problem. Be sure each answer makes sense.



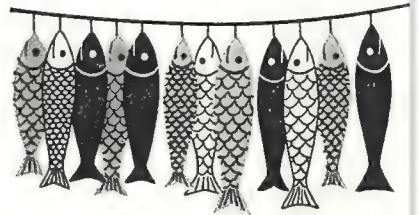
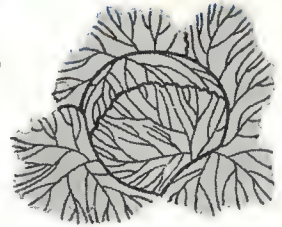
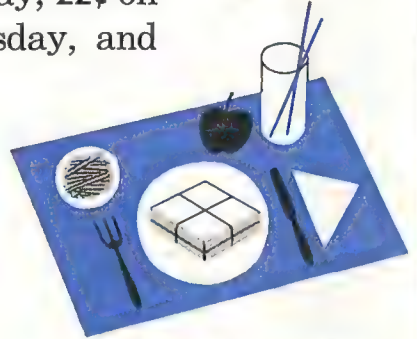
1. You can fill 2 pint bottles with 1 quart of milk. How many pint bottles can you fill with 104 quarts?
2. How many quart bottles could you fill with 126 pints of milk?
3. How many 2-cent stamps can you buy with 40¢?
4. How much will 52 stamps cost at 2¢ each?
5. Tom made 113 on his first try and 124 on his second try. What was his score?
6. Bob made 123 on each of 2 tries. What was his score?
7. One calf weighs 84 pounds and another calf weighs 64 pounds. What is the difference in weight of the two calves?
8. If it takes 110 yards of cloth to make a tent, how many yards would it take to make 8 tents?
9. A big tent has 110 yards of cloth, a smaller tent has 38 yards, and a very small tent has 15 yards. How many yards of cloth have all these tents together?
10. If 5 children shared \$5.50 equally, how much money would each child get?
11. What must you pay for 2 pounds of candy if the price is \$.80 a pound?
12. Sue had 9 paper dolls and Joan had 12. How many more paper dolls did Joan have than Sue?



## Making Up Problems

In each of these problems the question is left out. Make up a good question for each problem. Write your question on a piece of paper. Then solve your own problem.

1. Judy made a score of 230. Jane's score was 195.
2. Sam had 3 books of stamps with 232 stamps in each book.
3. Jim bought 3 pounds of candy at \$.80 a pound.
4. Joan's lunch at school cost her 18¢ on Monday, 22¢ on Tuesday, 15¢ on Wednesday, 19¢ on Thursday, and 17¢ on Friday.
5. Mike's school lunch cost him \$.21 on each day of the school week.
6. Sue cut out 124 paper dolls in 4 days. She cut out the same number each day.
7. Three girls shared \$1.86 equally.
8. Betty had 36 cookies. She gave them all away, 3 cookies to each of her friends.
9. Tony planted 4 rows of cabbage plants with 32 plants in each row.
10. Ellen had one doll that cost \$4.50, another that cost \$2.65, and another that cost \$1.98.
11. Tom went fishing every day for 4 days. He caught 12 fish each day.
12. Jack collected comic books. When he had collected 125 he gave 60 of them away.
13. Jack is 8 years old. His friend Slim is 21 years old.





## Practice to Remember

Copy each example, add, and check.

1. $\begin{array}{r} 298 \\ 345 \\ 127 \\ \hline \end{array}$	$\begin{array}{r} 267 \\ 198 \\ 169 \\ \hline \end{array}$	$\begin{array}{r} 186 \\ 158 \\ 376 \\ \hline \end{array}$	$\begin{array}{r} 437 \\ 89 \\ 397 \\ \hline \end{array}$	$\begin{array}{r} 59 \\ 74 \\ 328 \\ \hline \end{array}$	$\begin{array}{r} 578 \\ 58 \\ 49 \\ \hline \end{array}$
---	--	--	---	--	--

2. $\begin{array}{r} \$7.68 \\ 1.07 \\ .53 \\ \hline \end{array}$	$\begin{array}{r} \$ .86 \\ 1.04 \\ .90 \\ \hline \end{array}$	$\begin{array}{r} \$2.97 \\ .61 \\ 2.24 \\ \hline \end{array}$	$\begin{array}{r} \$3.89 \\ .86 \\ .36 \\ \hline \end{array}$	$\begin{array}{r} \$ .33 \\ .96 \\ 4.57 \\ \hline \end{array}$
---	--	--	---	--

Copy each example, subtract, and check.

3. $\begin{array}{r} 520 \\ 287 \\ \hline \end{array}$	$\begin{array}{r} 732 \\ 578 \\ \hline \end{array}$	$\begin{array}{r} 940 \\ 264 \\ \hline \end{array}$	$\begin{array}{r} 855 \\ 679 \\ \hline \end{array}$	$\begin{array}{r} 686 \\ 397 \\ \hline \end{array}$	$\begin{array}{r} 468 \\ 189 \\ \hline \end{array}$
--	---	---	---	---	---

4. $\begin{array}{r} 331 \\ 197 \\ \hline \end{array}$	$\begin{array}{r} 953 \\ 697 \\ \hline \end{array}$	$\begin{array}{r} 864 \\ 578 \\ \hline \end{array}$	$\begin{array}{r} 973 \\ 489 \\ \hline \end{array}$	$\begin{array}{r} 742 \\ 386 \\ \hline \end{array}$	$\begin{array}{r} 681 \\ 289 \\ \hline \end{array}$
--	---	---	---	---	---

5. $\begin{array}{r} 806 \\ 429 \\ \hline \end{array}$	$\begin{array}{r} 701 \\ 465 \\ \hline \end{array}$	$\begin{array}{r} 604 \\ 176 \\ \hline \end{array}$	$\begin{array}{r} 915 \\ 596 \\ \hline \end{array}$	$\begin{array}{r} 913 \\ 765 \\ \hline \end{array}$	$\begin{array}{r} 814 \\ 385 \\ \hline \end{array}$
--	---	---	---	---	---

6. $\begin{array}{r} \$9.00 \\ 3.45 \\ \hline \end{array}$	$\begin{array}{r} \$4.00 \\ 2.33 \\ \hline \end{array}$	$\begin{array}{r} \$1.22 \\ .45 \\ \hline \end{array}$	$\begin{array}{r} \$6.41 \\ 5.46 \\ \hline \end{array}$	$\begin{array}{r} \$2.22 \\ 1.34 \\ \hline \end{array}$
--	---	--	---	---

Copy each example, multiply, and check.

7. $\begin{array}{r} 142 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 203 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 410 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} 303 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} 120 \\ \times 4 \\ \hline \end{array}$	$\begin{array}{r} 403 \\ \times 2 \\ \hline \end{array}$
---	--	--	--	--	--

8. $\begin{array}{r} \$1.30 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} \$2.04 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} \$1.02 \\ \times 3 \\ \hline \end{array}$	$\begin{array}{r} \$4.30 \\ \times 2 \\ \hline \end{array}$	$\begin{array}{r} \$2.20 \\ \times 4 \\ \hline \end{array}$
--	---	---	---	---

Copy each example, divide, and check.

9. $2 \overline{)640}$	$4 \overline{)804}$	$3 \overline{)960}$	$2 \overline{)802}$	$3 \overline{)609}$
------------------------	---------------------	---------------------	---------------------	---------------------

10. $4 \overline{)\$1.60}$	$2 \overline{)\$1.08}$	$3 \overline{)\$1.59}$	$3 \overline{)\$1.20}$	$4 \overline{)\$1.20}$
----------------------------	------------------------	------------------------	------------------------	------------------------

## Finding What You Need to Study Again

If you need to study something again, the page numbers at the side tell you where to find it.

Copy each example and write the answer.

$$\begin{array}{r} 1. \quad 300 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} 200 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} 100 \\ \times 4 \\ \hline \end{array} \quad \begin{array}{r} 111 \\ \times 8 \\ \hline \end{array} \quad \begin{array}{r} 121 \\ \times 4 \\ \hline \end{array} \quad \begin{array}{r} 434 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad \$2.14 \\ \times 2 \\ \hline \end{array} \quad \begin{array}{r} \$3.12 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} \$2.12 \\ \times 4 \\ \hline \end{array} \quad \begin{array}{r} 430 \\ \times 2 \\ \hline \end{array} \quad \begin{array}{r} 230 \\ \times 3 \\ \hline \end{array} \quad \begin{array}{r} 102 \\ \times 4 \\ \hline \end{array}$$

$$3. \quad 2 \overline{)800} \quad 4 \overline{)400} \quad 3 \overline{)600} \quad 3 \overline{)900}$$

$$4. \quad 3 \overline{)636} \quad 4 \overline{)848} \quad 3 \overline{)993} \quad 2 \overline{)842}$$

$$5. \quad 2 \overline{)\$6.42} \quad 4 \overline{)\$8.84} \quad 3 \overline{)\$3.96} \quad 2 \overline{)\$2.68}$$

$$6. \quad 4 \overline{)808} \quad 3 \overline{)630} \quad 2 \overline{)806} \quad 2 \overline{)420}$$

### Review of Number Facts

A. 1    2    3    4    5    6    7    8    9

1. To each number in row A, add 8. Add 9. Add 7. Add 6. Add 11. Add 12. Add 13.

B. 10    11    12    13    14    15    16    17    18

2. From each number in row B, subtract 9; 8; 7; 6; 5; 4; 3; 2.

3. Multiply each number in row A by 2; by 3; by 1; by 0.

4. Find  $\frac{1}{2}$  of each of the even numbers in rows A and B.

5. Find  $\frac{1}{3}$  of each of these numbers: 0, 3, 6, 9, 12, 15, 18, 21, 24, 27.

Page

297, 299

300, 301

304

306

309

310

## Finding Out What You Know

### A. Word Meanings

Write the number of each sentence. Beside each number write the missing word in that sentence.

$$3 \times 2 = 6$$



1. At the left of this sentence is a number \_\_\_\_\_.
2. \_\_\_\_\_ groups have the same number of things.
3. The number 164 has \_\_\_\_\_ figures.
4. The number 75 has \_\_\_\_\_ places.
5. A group is more than \_\_\_\_\_ thing.
6. A single thing is just \_\_\_\_\_ thing.
7. The word *sixteen* means six and \_\_\_\_\_.
8. The value of 2 dimes is \_\_\_\_\_ cents.
9. The number IX is a \_\_\_\_\_ nine.
10. The temperature was 70 \_\_\_\_\_.
11. \$1.26 and 126 cents are equal \_\_\_\_\_ of money.
12. To find  $\frac{1}{3}$  of a number, \_\_\_\_\_ by 3.

### B. Arithmetic Understandings

1. Write 345 cents as dollars and cents.
2. In adding 29, 38, and 43, how many tens would you carry?
3. To subtract 156 from 300, you borrow 1 hundred and change it to how many tens and how many ones?
4. Find  $24¢ \div 6¢$  by subtraction.
5. Find  $4 \times 8¢$  by addition.
6. What is the largest 3-place number you can write with the figures 3, 1, and 9? the smallest?

### C. Number Facts and Skills

Copy each example. Find the answer and check.

- |    |  |  |   |  |
|----|--|--|---|--|
| 1. | $\begin{array}{r} 9 \\ 7 \\ 8 \\ +6 \\ \hline \end{array}$ | $\begin{array}{r} 25 \\ 87 \\ 30 \\ +68 \\ \hline \end{array}$ | $\begin{array}{r} 145 \\ 209 \\ +396 \\ \hline \end{array}$ | $\begin{array}{r} \$4.75 \\ .78 \\ +.89 \\ \hline \end{array}$ |
| 2. | $\begin{array}{r} 750 \\ -120 \\ \hline \end{array}$       | $\begin{array}{r} 629 \\ -294 \\ \hline \end{array}$           | $\begin{array}{r} 935 \\ -268 \\ \hline \end{array}$        | $\begin{array}{r} 412 \\ -387 \\ \hline \end{array}$           |
| 3. | $\begin{array}{r} 560 \\ -253 \\ \hline \end{array}$       | $\begin{array}{r} 600 \\ -495 \\ \hline \end{array}$           | $\begin{array}{r} \$5.05 \\ -2.89 \\ \hline \end{array}$    | $\begin{array}{r} \$8.15 \\ -.47 \\ \hline \end{array}$        |
| 4. | $\begin{array}{r} 72 \\ \times 3 \\ \hline \end{array}$    | $\begin{array}{r} 92 \\ \times 2 \\ \hline \end{array}$        | $\begin{array}{r} 30 \\ \times 4 \\ \hline \end{array}$     | $\begin{array}{r} 314 \\ \times 2 \\ \hline \end{array}$       |
| 5. | $2 \overline{)604}$  | $3 \overline{)159}$  | $4 \overline{)\$1.24}$                                      | $3 \overline{)\$9.06}$   |

### D. Problem Solving

1. Bob wants to buy a knife that costs \$.75. He has only \$.56. How much more money does he need?
2. Ann spent \$2.49 for a beach coat and \$.75 for sandals. How much did she spend all together?
3. The temperature at noon on a hot summer day was 103 degrees. The next day at noon it was 86 degrees. What was the difference in temperature at noon on the two days?
4. Ted bought 3 pounds of candy at \$1.23 a pound. How much did the candy cost him?
5. Ruth, Betty, and Sue shared the cost of a party equally. The cost of the party was \$9.60. How much was each girl's share of the cost?





## 100 Addition Facts

$\frac{0}{0}$	$\frac{0}{1}$	$\frac{0}{2}$	$\frac{0}{3}$	$\frac{0}{4}$	$\frac{0}{5}$	$\frac{0}{6}$	$\frac{0}{7}$	$\frac{0}{8}$	$\frac{0}{9}$
$\frac{1}{0}$	$\frac{1}{1}$	$\frac{1}{2}$	$\frac{1}{3}$	$\frac{1}{4}$	$\frac{1}{5}$	$\frac{1}{6}$	$\frac{1}{7}$	$\frac{1}{8}$	$\frac{1}{9}$
$\frac{2}{0}$	$\frac{2}{1}$	$\frac{2}{2}$	$\frac{2}{3}$	$\frac{2}{4}$	$\frac{2}{5}$	$\frac{2}{6}$	$\frac{2}{7}$	$\frac{2}{8}$	$\frac{2}{9}$
$\frac{3}{0}$	$\frac{3}{1}$	$\frac{3}{2}$	$\frac{3}{3}$	$\frac{3}{4}$	$\frac{3}{5}$	$\frac{3}{6}$	$\frac{3}{7}$	$\frac{3}{8}$	$\frac{3}{9}$
$\frac{4}{0}$	$\frac{4}{1}$	$\frac{4}{2}$	$\frac{4}{3}$	$\frac{4}{4}$	$\frac{4}{5}$	$\frac{4}{6}$	$\frac{4}{7}$	$\frac{4}{8}$	$\frac{4}{9}$
$\frac{5}{0}$	$\frac{5}{1}$	$\frac{5}{2}$	$\frac{5}{3}$	$\frac{5}{4}$	$\frac{5}{5}$	$\frac{5}{6}$	$\frac{5}{7}$	$\frac{5}{8}$	$\frac{5}{9}$
$\frac{6}{0}$	$\frac{6}{1}$	$\frac{6}{2}$	$\frac{6}{3}$	$\frac{6}{4}$	$\frac{6}{5}$	$\frac{6}{6}$	$\frac{6}{7}$	$\frac{6}{8}$	$\frac{6}{9}$
$\frac{7}{0}$	$\frac{7}{1}$	$\frac{7}{2}$	$\frac{7}{3}$	$\frac{7}{4}$	$\frac{7}{5}$	$\frac{7}{6}$	$\frac{7}{7}$	$\frac{7}{8}$	$\frac{7}{9}$
$\frac{8}{0}$	$\frac{8}{1}$	$\frac{8}{2}$	$\frac{8}{3}$	$\frac{8}{4}$	$\frac{8}{5}$	$\frac{8}{6}$	$\frac{8}{7}$	$\frac{8}{8}$	$\frac{8}{9}$
$\frac{9}{0}$	$\frac{9}{1}$	$\frac{9}{2}$	$\frac{9}{3}$	$\frac{9}{4}$	$\frac{9}{5}$	$\frac{9}{6}$	$\frac{9}{7}$	$\frac{9}{8}$	$\frac{9}{9}$

## 100 Subtraction Facts

0	1	2	3	4	5	6	7	8	9
$\frac{0}{0}$	$\frac{0}{1}$	$\frac{0}{2}$	$\frac{0}{3}$	$\frac{0}{4}$	$\frac{0}{5}$	$\frac{0}{6}$	$\frac{0}{7}$	$\frac{0}{8}$	$\frac{0}{9}$
1	2	3	4	5	6	7	8	9	10
$\frac{1}{0}$	$\frac{1}{1}$	$\frac{1}{2}$	$\frac{1}{3}$	$\frac{1}{4}$	$\frac{1}{5}$	$\frac{1}{6}$	$\frac{1}{7}$	$\frac{1}{8}$	$\frac{1}{9}$
2	3	4	5	6	7	8	9	10	11
$\frac{2}{0}$	$\frac{2}{1}$	$\frac{2}{2}$	$\frac{2}{3}$	$\frac{2}{4}$	$\frac{2}{5}$	$\frac{2}{6}$	$\frac{2}{7}$	$\frac{2}{8}$	$\frac{2}{9}$
3	4	5	6	7	8	9	10	11	12
$\frac{3}{0}$	$\frac{3}{1}$	$\frac{3}{2}$	$\frac{3}{3}$	$\frac{3}{4}$	$\frac{3}{5}$	$\frac{3}{6}$	$\frac{3}{7}$	$\frac{3}{8}$	$\frac{3}{9}$
4	5	6	7	8	9	10	11	12	13
$\frac{4}{0}$	$\frac{4}{1}$	$\frac{4}{2}$	$\frac{4}{3}$	$\frac{4}{4}$	$\frac{4}{5}$	$\frac{4}{6}$	$\frac{4}{7}$	$\frac{4}{8}$	$\frac{4}{9}$
5	6	7	8	9	10	11	12	13	14
$\frac{5}{0}$	$\frac{5}{1}$	$\frac{5}{2}$	$\frac{5}{3}$	$\frac{5}{4}$	$\frac{5}{5}$	$\frac{5}{6}$	$\frac{5}{7}$	$\frac{5}{8}$	$\frac{5}{9}$
6	7	8	9	10	11	12	13	14	15
$\frac{6}{0}$	$\frac{6}{1}$	$\frac{6}{2}$	$\frac{6}{3}$	$\frac{6}{4}$	$\frac{6}{5}$	$\frac{6}{6}$	$\frac{6}{7}$	$\frac{6}{8}$	$\frac{6}{9}$
7	8	9	10	11	12	13	14	15	16
$\frac{7}{0}$	$\frac{7}{1}$	$\frac{7}{2}$	$\frac{7}{3}$	$\frac{7}{4}$	$\frac{7}{5}$	$\frac{7}{6}$	$\frac{7}{7}$	$\frac{7}{8}$	$\frac{7}{9}$
8	9	10	11	12	13	14	15	16	17
$\frac{8}{0}$	$\frac{8}{1}$	$\frac{8}{2}$	$\frac{8}{3}$	$\frac{8}{4}$	$\frac{8}{5}$	$\frac{8}{6}$	$\frac{8}{7}$	$\frac{8}{8}$	$\frac{8}{9}$
9	10	11	12	13	14	15	16	17	18
$\frac{9}{0}$	$\frac{9}{1}$	$\frac{9}{2}$	$\frac{9}{3}$	$\frac{9}{4}$	$\frac{9}{5}$	$\frac{9}{6}$	$\frac{9}{7}$	$\frac{9}{8}$	$\frac{9}{9}$

# 100 Multiplication Facts

0	1	2	3	4	5	6	7	8	9
$\frac{0}{0}$	$\frac{0}{0}$	$\frac{0}{0}$	$\frac{0}{0}$	$\frac{0}{0}$	$\frac{0}{0}$	$\frac{0}{0}$	$\frac{0}{0}$	$\frac{0}{0}$	$\frac{0}{0}$
0	1	2	3	4	5	6	7	8	9
$\frac{1}{0}$	$\frac{1}{1}$	$\frac{1}{2}$	$\frac{1}{3}$	$\frac{1}{4}$	$\frac{1}{5}$	$\frac{1}{6}$	$\frac{1}{7}$	$\frac{1}{8}$	$\frac{1}{9}$
0	1	2	3	4	5	6	7	8	9
$\frac{2}{0}$	$\frac{2}{2}$	$\frac{2}{4}$	$\frac{2}{6}$	$\frac{2}{8}$	$\frac{2}{10}$	$\frac{2}{12}$	$\frac{2}{14}$	$\frac{2}{16}$	$\frac{2}{18}$
0	1	2	3	4	5	6	7	8	9
$\frac{3}{0}$	$\frac{3}{3}$	$\frac{3}{6}$	$\frac{3}{9}$	$\frac{3}{12}$	$\frac{3}{15}$	$\frac{3}{18}$	$\frac{3}{21}$	$\frac{3}{24}$	$\frac{3}{27}$
0	1	2	3	4	5	6	7	8	9
$\frac{4}{0}$	$\frac{4}{4}$	$\frac{4}{8}$	$\frac{4}{12}$	$\frac{4}{16}$	$\frac{4}{20}$	$\frac{4}{24}$	$\frac{4}{28}$	$\frac{4}{32}$	$\frac{4}{36}$
0	1	2	3	4	5	6	7	8	9
$\frac{5}{0}$	$\frac{5}{5}$	$\frac{5}{10}$	$\frac{5}{15}$	$\frac{5}{20}$	$\frac{5}{25}$	$\frac{5}{30}$	$\frac{5}{35}$	$\frac{5}{40}$	$\frac{5}{45}$
0	1	2	3	4	5	6	7	8	9
$\frac{6}{0}$	$\frac{6}{6}$	$\frac{6}{12}$	$\frac{6}{18}$	$\frac{6}{24}$	$\frac{6}{30}$	$\frac{6}{36}$	$\frac{6}{42}$	$\frac{6}{48}$	$\frac{6}{54}$
0	1	2	3	4	5	6	7	8	9
$\frac{7}{0}$	$\frac{7}{7}$	$\frac{7}{14}$	$\frac{7}{21}$	$\frac{7}{28}$	$\frac{7}{35}$	$\frac{7}{42}$	$\frac{7}{49}$	$\frac{7}{56}$	$\frac{7}{63}$
0	1	2	3	4	5	6	7	8	9
$\frac{8}{0}$	$\frac{8}{8}$	$\frac{8}{16}$	$\frac{8}{24}$	$\frac{8}{32}$	$\frac{8}{40}$	$\frac{8}{48}$	$\frac{8}{56}$	$\frac{8}{64}$	$\frac{8}{72}$
0	1	2	3	4	5	6	7	8	9
$\frac{9}{0}$	$\frac{9}{9}$	$\frac{9}{18}$	$\frac{9}{27}$	$\frac{9}{36}$	$\frac{9}{45}$	$\frac{9}{54}$	$\frac{9}{63}$	$\frac{9}{72}$	$\frac{9}{81}$



## 90 Division Facts

$\begin{array}{r} 0 \\ 1 \overline{)0} \end{array}$	$\begin{array}{r} 1 \\ 1 \overline{)1} \end{array}$	$\begin{array}{r} 2 \\ 1 \overline{)2} \end{array}$	$\begin{array}{r} 3 \\ 1 \overline{)3} \end{array}$	$\begin{array}{r} 4 \\ 1 \overline{)4} \end{array}$	$\begin{array}{r} 5 \\ 1 \overline{)5} \end{array}$	$\begin{array}{r} 6 \\ 1 \overline{)6} \end{array}$	$\begin{array}{r} 7 \\ 1 \overline{)7} \end{array}$	$\begin{array}{r} 8 \\ 1 \overline{)8} \end{array}$	$\begin{array}{r} 9 \\ 1 \overline{)9} \end{array}$
$\begin{array}{r} 0 \\ 2 \overline{)0} \end{array}$	$\begin{array}{r} 1 \\ 2 \overline{)2} \end{array}$	$\begin{array}{r} 2 \\ 2 \overline{)4} \end{array}$	$\begin{array}{r} 3 \\ 2 \overline{)6} \end{array}$	$\begin{array}{r} 4 \\ 2 \overline{)8} \end{array}$	$\begin{array}{r} 5 \\ 2 \overline{)10} \end{array}$	$\begin{array}{r} 6 \\ 2 \overline{)12} \end{array}$	$\begin{array}{r} 7 \\ 2 \overline{)14} \end{array}$	$\begin{array}{r} 8 \\ 2 \overline{)16} \end{array}$	$\begin{array}{r} 9 \\ 2 \overline{)18} \end{array}$
$\begin{array}{r} 0 \\ 3 \overline{)0} \end{array}$	$\begin{array}{r} 1 \\ 3 \overline{)3} \end{array}$	$\begin{array}{r} 2 \\ 3 \overline{)6} \end{array}$	$\begin{array}{r} 3 \\ 3 \overline{)9} \end{array}$	$\begin{array}{r} 4 \\ 3 \overline{)12} \end{array}$	$\begin{array}{r} 5 \\ 3 \overline{)15} \end{array}$	$\begin{array}{r} 6 \\ 3 \overline{)18} \end{array}$	$\begin{array}{r} 7 \\ 3 \overline{)21} \end{array}$	$\begin{array}{r} 8 \\ 3 \overline{)24} \end{array}$	$\begin{array}{r} 9 \\ 3 \overline{)27} \end{array}$
$\begin{array}{r} 0 \\ 4 \overline{)0} \end{array}$	$\begin{array}{r} 1 \\ 4 \overline{)4} \end{array}$	$\begin{array}{r} 2 \\ 4 \overline{)8} \end{array}$	$\begin{array}{r} 3 \\ 4 \overline{)12} \end{array}$	$\begin{array}{r} 4 \\ 4 \overline{)16} \end{array}$	$\begin{array}{r} 5 \\ 4 \overline{)20} \end{array}$	$\begin{array}{r} 6 \\ 4 \overline{)24} \end{array}$	$\begin{array}{r} 7 \\ 4 \overline{)28} \end{array}$	$\begin{array}{r} 8 \\ 4 \overline{)32} \end{array}$	$\begin{array}{r} 9 \\ 4 \overline{)36} \end{array}$
$\begin{array}{r} 0 \\ 5 \overline{)0} \end{array}$	$\begin{array}{r} 1 \\ 5 \overline{)5} \end{array}$	$\begin{array}{r} 2 \\ 5 \overline{)10} \end{array}$	$\begin{array}{r} 3 \\ 5 \overline{)15} \end{array}$	$\begin{array}{r} 4 \\ 5 \overline{)20} \end{array}$	$\begin{array}{r} 5 \\ 5 \overline{)25} \end{array}$	$\begin{array}{r} 6 \\ 5 \overline{)30} \end{array}$	$\begin{array}{r} 7 \\ 5 \overline{)35} \end{array}$	$\begin{array}{r} 8 \\ 5 \overline{)40} \end{array}$	$\begin{array}{r} 9 \\ 5 \overline{)45} \end{array}$
$\begin{array}{r} 0 \\ 6 \overline{)0} \end{array}$	$\begin{array}{r} 1 \\ 6 \overline{)6} \end{array}$	$\begin{array}{r} 2 \\ 6 \overline{)12} \end{array}$	$\begin{array}{r} 3 \\ 6 \overline{)18} \end{array}$	$\begin{array}{r} 4 \\ 6 \overline{)24} \end{array}$	$\begin{array}{r} 5 \\ 6 \overline{)30} \end{array}$	$\begin{array}{r} 6 \\ 6 \overline{)36} \end{array}$	$\begin{array}{r} 7 \\ 6 \overline{)42} \end{array}$	$\begin{array}{r} 8 \\ 6 \overline{)48} \end{array}$	$\begin{array}{r} 9 \\ 6 \overline{)54} \end{array}$
$\begin{array}{r} 0 \\ 7 \overline{)0} \end{array}$	$\begin{array}{r} 1 \\ 7 \overline{)7} \end{array}$	$\begin{array}{r} 2 \\ 7 \overline{)14} \end{array}$	$\begin{array}{r} 3 \\ 7 \overline{)21} \end{array}$	$\begin{array}{r} 4 \\ 7 \overline{)28} \end{array}$	$\begin{array}{r} 5 \\ 7 \overline{)35} \end{array}$	$\begin{array}{r} 6 \\ 7 \overline{)42} \end{array}$	$\begin{array}{r} 7 \\ 7 \overline{)49} \end{array}$	$\begin{array}{r} 8 \\ 7 \overline{)56} \end{array}$	$\begin{array}{r} 9 \\ 7 \overline{)63} \end{array}$
$\begin{array}{r} 0 \\ 8 \overline{)0} \end{array}$	$\begin{array}{r} 1 \\ 8 \overline{)8} \end{array}$	$\begin{array}{r} 2 \\ 8 \overline{)16} \end{array}$	$\begin{array}{r} 3 \\ 8 \overline{)24} \end{array}$	$\begin{array}{r} 4 \\ 8 \overline{)32} \end{array}$	$\begin{array}{r} 5 \\ 8 \overline{)40} \end{array}$	$\begin{array}{r} 6 \\ 8 \overline{)48} \end{array}$	$\begin{array}{r} 7 \\ 8 \overline{)56} \end{array}$	$\begin{array}{r} 8 \\ 8 \overline{)64} \end{array}$	$\begin{array}{r} 9 \\ 8 \overline{)72} \end{array}$
$\begin{array}{r} 0 \\ 9 \overline{)0} \end{array}$	$\begin{array}{r} 1 \\ 9 \overline{)9} \end{array}$	$\begin{array}{r} 2 \\ 9 \overline{)18} \end{array}$	$\begin{array}{r} 3 \\ 9 \overline{)27} \end{array}$	$\begin{array}{r} 4 \\ 9 \overline{)36} \end{array}$	$\begin{array}{r} 5 \\ 9 \overline{)45} \end{array}$	$\begin{array}{r} 6 \\ 9 \overline{)54} \end{array}$	$\begin{array}{r} 7 \\ 9 \overline{)63} \end{array}$	$\begin{array}{r} 8 \\ 9 \overline{)72} \end{array}$	$\begin{array}{r} 9 \\ 9 \overline{)81} \end{array}$

### Measures of Length

12 inches = 1 foot

3 feet = 1 yard

36 inches = 1 yard

### Liquid Measures

2 cups = 1 pint

2 pints = 1 quart

4 quarts = 1 gallon

### Measures of Time

60 seconds = 1 minute

60 minutes = 1 hour

24 hours = 1 day

7 days = 1 week

365 days = 1 year

366 days = 1 leap year



## INDEX

### Addition

- bridging in, 168–172, 175, 176, 181, 192
- carrying in, 185, 186, 188–190, 192, 199, 205, 212–216, 226
- checking answers in, 29, 153
- column, 29, 32–34, 62–63, 97, 99, 114, 131–132, 141–142, 152–153, 155, 164–166, 170–176, 189–190, 192, 212–216, 226
- by endings, 150–155, 168, 169, 172, 175
- facts, (of 0) 7, (of numbers to 10) 10–12, (of 11) 70–73, (of 12) 90–93, (of 13) 94–96, (of 14) 105–109, (of 15) 120–121, (of 16) 125–126 (of 17 and 18) 135, (of 19) 138, (of doubles) 14, 136, (list of) 324
- helps in learning, (charts) 15, 42, 51, 64, 74, 90, 139, (number line) 150, 168–169, 175, (key facts) 151–152, 169; *see also* Number facts.
- making change by, *see* Money.
- meaning of, 6, 16
- of money, *see* Money.
- of one- and two-place numbers, 51, 63
- of one-, two-, and three-place numbers, 165
- practice in, 7, 9–10, 15–16, 21–22, 24, 29, 32–35, 37, 42, 51–52, 54, 56, 58, 62–63, 65–67, 69, 71–73, 77–79, 91, 96–101, 103, 106–107, 110–114, 118–119, 121, 123, 125–126, 129–132, 135–142, 145–147, 149, 151–157, 163–166, 168–184, 186–193, 199, 204–205, 211–216, 221, 223–226, 229, 233, 235, 240, 242–243, 248–249, 259, 268, 271, 276, 280, 289, 295, 302–303, 307, 316–321, 323
- relationships, *see* Number (fact) families.
- sign for, 6
- of tens, 52, 58, 111, 119, 138
- terms and their meanings, 2–8, 16, 44, 132, 157
- of three-place numbers, 156, 157, 164, 199, 205, 214–216, 226
- of two-place numbers, 52, 54, 56, 62, 110–114, 130–132, 142, 155, 171, 174–176, 186, 189, 212–213, 226
- of two- and three-place numbers, 166
- when to use, 2–3, 36–37, 249, 314
- zero in, 7, 32, 52, 58, 111, 166, 263

Calendar, 86–87, 110, 124

Cent sign, 9

Change, making, *see* Money.

### Charts

- addition, 64, 139
- number, 3, 10, 15, 42, 47, 51, 74
- place-value, 41, 80, 185, 189
- subtraction, 64, 139

Checking answers, *see* each process.

Clock, 30–31, 79, 88–89, 91, 102, 148

Coins, *see* Money.

Column, meaning of, 44

Comparing numbers, *see* Subtraction.

Counting, (forward by 1's) 13, 42, 47, 79, (backward by 1's) 13, 42, 47, 79, (by 2's) 2, 13, 191,

231, (by 3's) 3, 13, 47, (by 5's) 3, 30, 31, 47, 84, 89, (by 10's) 3, 43, 47, 68, 111, 191, (by 100's) 76, (over 100) 74, 111, (money) 40, 75–76, (on number chart) 47

### Decimal point, 82

### Division

- checking, 264–265
- facts, (of 0) 263, (of 1) 262, (of 2) 252, (of 3) 281, (of 4) 285, (of 5–9) 285, (list of) 327
- to find half of a group, 254–255
- to find number in each equal group, 258, 315
- to find number of equal groups, 251, 254, 258, 315
- helps in learning, (number line) 281, 285, (pairs of facts) 256, 282
- of hundreds, 304–305
- meaning of, 250–251, 254–255, 258
- of money, *see* Money.
- practice in, 250–256, 259–269, 271, 282–283, 285, 287–291, 293, 295, 304–313, 316–321, 323
- problems in, *see* Problems.
- relationships, *see* Number (fact) families.
- sign of, 251
- of tens, 264, 265, 287
- terms and their meanings, 251, 253, 283, 288
- of three-place numbers, 265, 266, 287, 304, 305, 306, 309, 310, 321
- of two-place numbers, 264, 266, 287
- when to use, 253–254, 258, 283, 288, 290, 315–316
- zero in, 310, 321

Dollar sign, 82

### Equal sign, 6

Finding Out What You Know, 36–37, 68–69, 102–103, 148–149, 180–181, 228–229, 270–271, 294–295, 322–323

Finding What You Need to Study Again, 35, 67, 101, 147, 178–179, 226–227, 269, 293, 321

Fourths, 26, 28, 31, 288

### Fractions

- fourths, 26, 28, 31, 288
- fractional parts of a group, 253–255, 283, 288, 290
- fractional parts of a whole, 26–28, 253, 283, 288
- half, 26, 28, 31, 253, (note) 292
- halves, 26, 28
- meaning of, 26, 27, 253, 283, 288
- in music, 292
- thirds, 27–28, 283

### Games

- Call a Number, 12
- A Family Game, 85
- Hiding Pennies, 7, 109
- Hopscotch on a Chart, 15
- A Number Game, 272–273

- Group(s)**  
 equal, 231–232, 250–251, 258, 314–315  
 fractional parts of, 253–255, 283, 288, 290  
 meaning of, 2, 36  
 putting together, 16, 36, 235, 242, 249, 260, 290, 314  
 taking apart, 17, 260, 314, 315
- Half**, 26, 28, 31, 253, (in music) 292
- Halves**, 26, 28
- Hundreds**  
 counting by, 76  
 dividing, 304, 305  
 meaning of, 80–81  
 multiplying, 296–298
- "I Will Help You" cards**, 25, 77, 100, 106, 109, 248, 259, 267, 276, 285
- Key facts**, *see* Addition and Subtraction.
- Left and right**, meaning of, 41
- Measures**  
 of distance, (blocks) 98, (miles) 99  
 dozen, 92, 237  
 of length, (inch) 20–21, 209, (foot, yard) 209, 327  
 liquid, (pint, quart) 50, 327, (half pint) 50, (gallon) 327  
 tables of, 327  
 of temperature, 191  
 of time, (minute, hour) 30–31, 79, 89, 91, 327, (day, week, year) 86–87, 327, (month) 86–87  
 using a ruler, 20, 21, 209  
 using scales, 22, 126, 128  
 of weight, (ounce) 125, (pound) 22, 48–49, 125
- Minus sign**, 6
- Money**  
 adding, 9, 33, 56, 106, 113–114, 130, 132, 142, 157, 166, 171, 174–175, 186, 189–190, 192, 205, 207, 212–216  
 cent sign, 9  
 counting, 40, 75–76  
 decimal point, 82  
 dividing, 266, 287, 309, 311  
 dollar sign, 82  
 making change, 9, 84, 210–211  
 multiplying, 240, 245, 278, 300  
 problems about, 302; *see also* Problems.  
 reading and writing dollars and cents, 82–83  
 subtracting, 57, 117, 133–134, 143, 162, 167, 177, 195, 201, 203–204, 208, 218, 221, 223  
 value of, (pennies, nickels, dimes) 8–9, 33, 40, 52–53, 56–57, 75–76, 84–85, 182–184, 240, (quarters, half dollars, dollars) 84–85
- Multiplication**  
 checking answers in, 241, 278  
 equal groups, 231–232, 314
- facts, (of 0) 239, (of 1) 238, (of 2) 234–236, (of 3) 274–275, (of 4) 284, (of 5–9) 284, (of 10) 239–241, (list of) 326  
 helps in learning, (pairs of facts) 237, (number line) 274, 284  
 of hundreds, 296–298  
 meaning of, 231–233  
 with money, *see* Money.  
 practice in, 232–238, 240–250, 259–261, 263, 267–269, 271–273, 275–280, 286, 289–291, 293, 295, 297–303, 307–308, 312–313, 316–321, 323  
 problems in, *see* Problems.  
 relationships, *see* Number (fact) families.  
 sign of, 232  
 of tens, 239, 240–241  
 terms and their meanings, 231, 232  
 of three-place numbers, 297, 299–301  
 of two-place numbers, 241, 243–245, 278–279  
 when to use, 246, 249, 290, 314  
 zero in, 239, 263, 301, 321
- Number facts**, 5, 10; *see also* each process.  
 helps in learning, (counting) 13, (number families) 14, 72, (doubles) 14, 136–137, (charts) 14, 90, 93, 139, ("I Will Help You" cards) 25, (number strips) 94, 95, 105, 108, 120, 122, 127, 135, (facts already learned) 123, (tên) 138–139, 147  
 review of, 321
- Number (fact) families**  
 addition and subtraction, 10, 14, 24, 72, 85, 95, 101, 108, 119, 122, 129, 135, 138  
 multiplication and division, 257, 261, 267, 286
- Number line**, using  
 for addition and subtraction, 150, 168–169, 175  
 for division, 281, 285  
 for multiplication, 274, 284
- Numbers**  
 meaning of, (1-place) 4, 41, (teen) 38–39, 138, (2-place) 41, 45–46, (3-place) 74–75, 80–81  
 odd and even, 4, 24, 136  
 ordinals, 4  
 practice in writing, 39, 43, 45, 46, 52, 67, 74, 81, 101, 102, 187, 213  
 practice in writing names of, 43, 67, 101–102, 187, 213  
 reading, 39, 74, 81  
 Roman numerals, 88
- Number strips**, *see* Number facts.
- Odd and even numbers**, 4, 24, 136
- Oral practice**, 223, 240
- Ordinals**, 4
- Original problems**, 272–273, 319
- Pair**, 36
- Place value**  
 charts, 41, 80, 185, 189  
 meaning of, (one-place) 41, (two-place) 45–46, (three-place) 80–81

- Plus sign, 6
- Practice to Remember, 24, 65, 77, 100, 106, 109, 118, 121, 124, 126, 128, 140, 146, 153, 177, 187, 193, 204, 213, 221, 248, 259, 267, 276, 280, 289, 298, 307, 320
- Problems
- addition, 9, 10, 16, 21–22, 33–34, 37, 49, 54, 56, 58, 63, 73, 79, 84, 97–99, 103, 110–114, 117–118, 121, 125, 130–131, 141, 154–157, 164–166, 169–170, 173, 176, 182–183, 188–190, 199, 205, 212, 215–216, 235
  - all processes, 268, 271, 295, 316–319, 323
  - division, 250, 252, 254–255, 283, 305, 311–313
  - multiplication, 232, 235, 245–247, 250, 272–273, 275, 277–279, 298, 300, 312–313
  - original, 272–273, 319
  - sensible answers to, 144–145
  - subtraction, 17–19, 21–22, 34, 37, 49, 53, 55, 57, 59, 73, 84, 92, 96, 98, 103, 110, 115, 117–118, 123–124, 127–128, 133–134, 143, 159, 162, 167, 195, 197–198, 200–202, 207–208, 218–220, 222–223, 312
- Problem-solving, developing ability in, 10, 36, 56–57, 66, 69, 78–79, 91, 96, 115–117, 121, 123, 125, 127, 131, 133–134, 141–145, 149, 156–157, 159, 162–165, 167, 170, 173, 181, 184, 189, 191, 195, 198–202, 205, 212, 216, 218–220, 222, 224–225, 235, 242, 246, 249–250, 252, 254, 260, 268, 275, 278–279, 290, 291, 300, 302–303, 305, 308, 311–319
- Roman numerals, 88
- Row, meaning of, 44
- Shapes, (circle, square, rectangle, triangle) 23
- Subtraction
- borrowing in, 194–198, 200–203, 206–208, 217–220, 222–223
  - checking answers in, 61, 160
  - to compare, 18–19, 48
  - by endings, 158, 178
  - facts, (of 0) 7, (of numbers to 10) 10–12, (of 11) 72–73, (of 12) 91–93, (of 13) 95–96, (of 14) 108–109, (of 15) 122, (of 16) 127–128, (of 17 and 18) 135, (of 19) 138, (list of) 325
  - to find difference, 315
  - to find how many are left, 6, 314
  - to find how many fewer, 18, 314
  - to find how many more, 18, 314
  - to find how many or how much more is needed, 19, 315
  - to find how much less, 18, 315
  - to find how much more, 18, 315
  - to find the number gone, 93, 314
  - helps in learning, (charts) 15, 42, 51, 64, 90, 139, (number line) 150, 168–169, 175, (key facts) 158; *see also* Number facts.
- meaning of, 6, 17
- minus sign, 6
- of money, *see* Money.
- of one-place from two-place numbers, 51, 196
- practice in, 7, 15, 17–19, 21–22, 24, 34–35, 37, 42, 51, 53, 55, 57, 59–61, 65–67, 69, 72, 77–78, 91–92, 96, 98, 100, 103, 109, 115–124, 127–129, 133–135, 138–140, 143, 145–147, 149, 158–163, 167, 177–181, 187, 191, 193, 195–198, 200–204, 207–208, 217–225, 227, 229, 248, 259, 268, 271, 280, 289, 295, 307, 312, 316–321, 323
- problems in, *see* Problems.
- relationships, *see* Number (fact) families.
- of tens, 53, 59, 115, 119
- terms and their meanings, 5, 6, 7, 17
- of three-place numbers, 159, 161–162, 178, 193, 200–201, 206–207, 217–220, 222–223, 227
- of two-place numbers, 53, 55, 57, 59–61, 110, 194–198
- of two-place from three-place numbers, 115, 116–117, 133–134, 143, 177, 202, 203, 208
- when to use, 6, 17, 18–19, 93, 314, 315
- zero in, 7, 59, 60, 134, 161, 178, 181, 197, 198, 219, 220, 222–223, 239, 263
- Temperature, 191
- Tens
- adding, 52, 58, 111, 119, 138
  - counting by, 43, 68, 111
  - dividing, 264, 265, 287
  - meaning of, 44–45, 46, 111
  - multiplying, 239, 240–241
  - and ones, 45, 46
  - subtracting, 53, 59, 115, 119
- Terms and their meanings, 4, 9, 82, 88, 91; *see also* each process and Fractions.
- Testing program, 268; *see also* Finding Out What You Know, Finding What You Need to Study Again, Practice to Remember.
- Thermometer, 191
- Thirds, 27, 28, 283
- Thousand, 76
- Time, (hour) 30–31, 88, 148, (half, quarter) 31, 89; *see also* Measures.
- Whole, 26–88
- Zero
- in addition, 7, 32, 52, 58, 111, 166, 263
  - in division, 310, 321
  - meaning of, 7, 58
  - in multiplication, 239, 263, 301, 321
  - in subtraction, 7, 59, 60, 134, 161, 178, 181, 197, 198, 219, 220, 222–223, 239, 263
  - on a thermometer, 191

This is the last page of this book; the back cover (plus the blank pages) are not required.